ORDER NO. AD0107131C2

Service Manual

IC Recorder

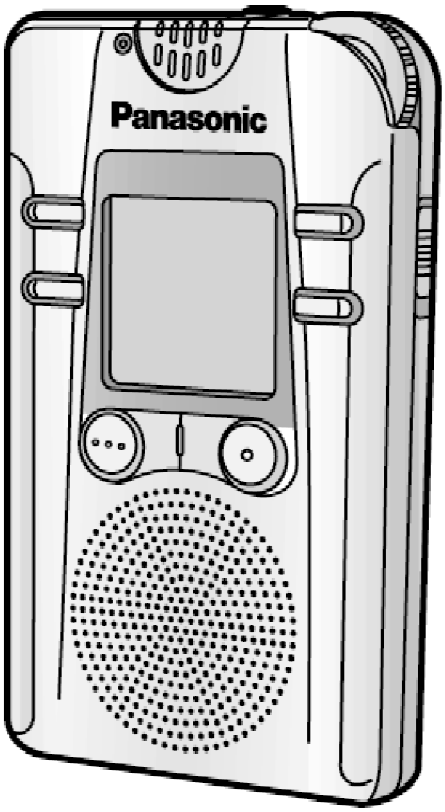
RR-QR100 / RR-QR200

Colour

(S).....Silver Type

Areas

(E).....Europe.



SPECIFICATIONS

Specifications

Power requirement:	**DC 3 V 2 AAA SIZE (R03/LR03, UM-4) BATTERIES**
Power output:	**200 mW (max.)**
Frequency response:	**300 Hz - 4,300 Hz (HQ mode)**
S/N:	**38 dB (HQ mode)**
Jack:	
Output jack;	**Earphone, 3.5 mm ; 3.6 mW 16 Ω**
Input jack;	**Mic, 3.5 mm ; 0.56 mV**
Speaker:	**28 mm 8 Ω**
Dimensions (W×H×D):	
Max dimensions;	**56.0×91.5×13.7mm**
Cabinet dimensions;	**55.0×91.0×12.8mm**
Mass:	
with batteries;	**About 64 g**
without batteries;	**About 44 g**
Operational temperature range:	**0°C-40°C°**
Battery life:	**[When used at 25°C and on a flat and stable surface]**
Batteries (Panasonic alkaline batteries):	
Playback;	**About 15 hours**
Recording;	**About 30 hours**
Available recording time:	
LP (Lnog play);	**100min.(RR-QR100) / 200min.(RR-QR200)**
SP (Standard play);	**31min.(RR-QR100) / 65min.(RR-QR200)**
HQ (High quality);	**15min.(RR-QR100) / 32min.(RR-QR200)**
Folders:	**4 (A,B,C,D)**

Note:

-The battery life may be less depending on the operating conditions.

-Specifications are subject to change without notice.

-Mass and dimensions are approximate.

© 2001 Matsushita Electric Industrial Co., Ltd. All rights reserved.
Unauthorized copying and distribution is a violation of law.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

1. Operating Instructions

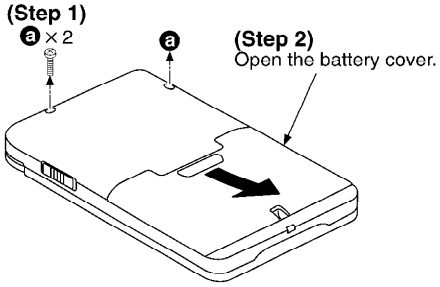
2. Operation Checks and Component Replacement Procedures

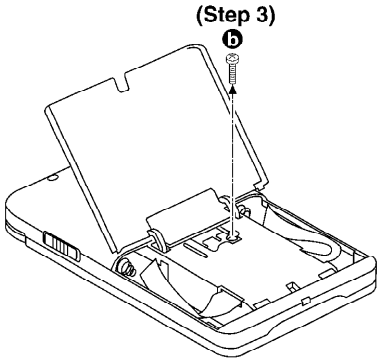
- This section describes procedures for checking the operation of

the major printed circuit boards and replacing the main components.

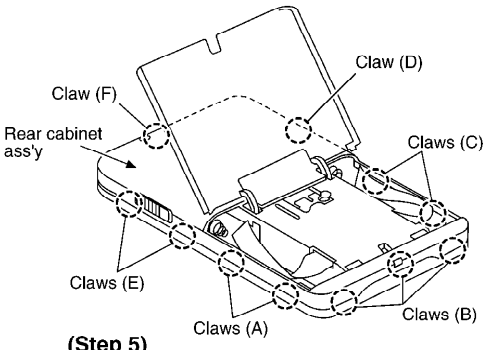
- For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.

2.1. Cheking for the P.C.B. (A side)



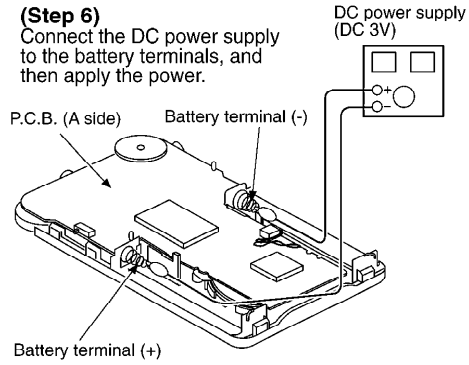


(Step 4)
First, release the claw (A), and then do the claw (B), (C), (D), (E), and (F) in turn.



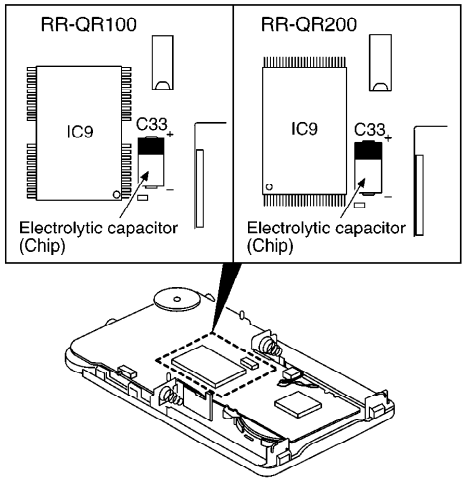
(Step 5)
Remove the rear cabinet ass'y.

- Check the P.C.B. (A side) as shown below.


(Step 6)
Connect the DC power supply to the battery terminals, and then apply the power.
DC power supply (DC 3V)
P.C.B. (A side)
Battery terminal (-)
Battery terminal (+)

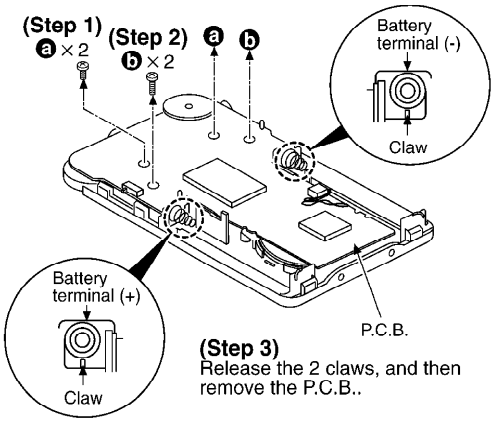
Cautions in replacement of parts

・Though C33 (RCST0JX107RG) polarity indication may differ depending on type of P.C.B., mount the replacement parts as shown below irrespective of the indication.



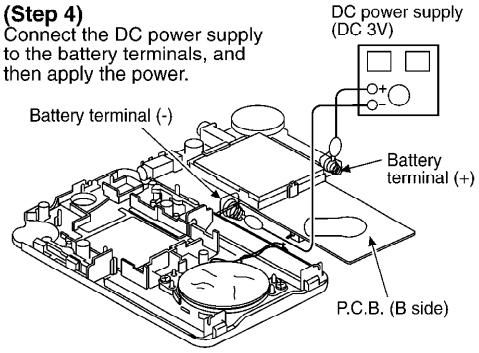
2.2. Cheking for the P.C.B. (B side)

- Follow the (Step 1) - (Step 5) of item 2.1.



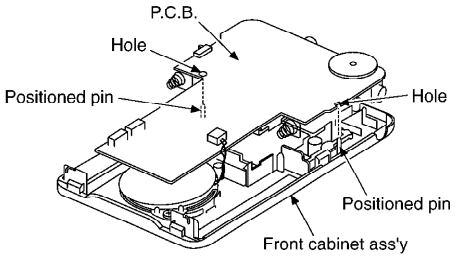
- Check the P.C.B. (B side) as shown below.

(Step 4)
Connect the DC power supply to the battery terminals, and then apply the power.



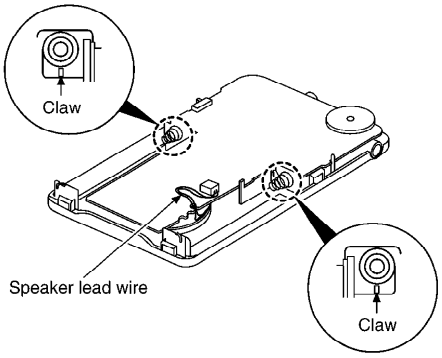
Notice for installation of P.C.B.

1. Align the positioned pin of front cabinet ass'y with the hole of P.C.B., and then install the P.C.B..



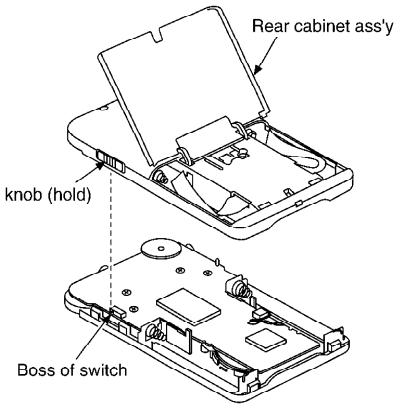
2. Make sure that the two claws are latched.

3. Arrange the speaker lead wire on the P.C.B..



Notice for installation of rear cabinet ass'y

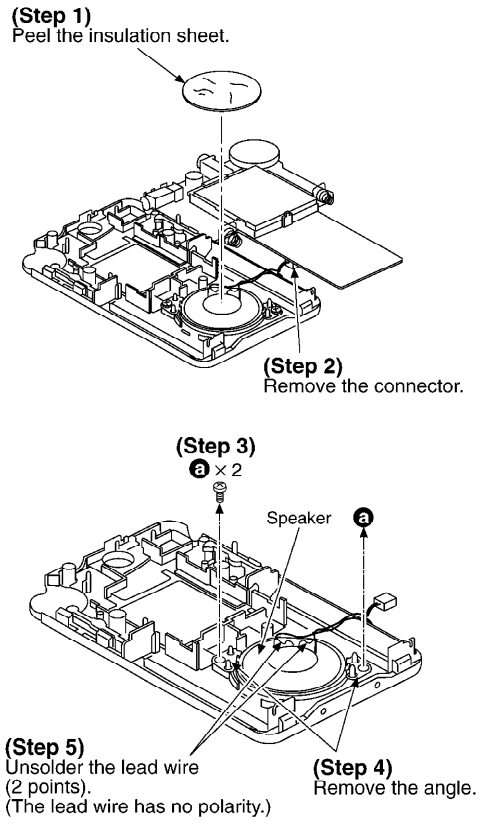
- Align the switch knob with the boss of switch, and then install the rear cabinet ass'y.



2.3. Replacement for the speaker

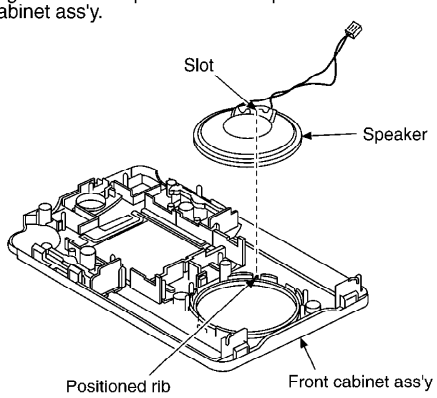
- Follow the (Step 1) - (Step 5) of item 2.1.

- Follow the (Step 1) - (Step 3) of item 2.2.



Notice for installation of speaker

・Align the slot of speaker with the positioned rib of front cabinet ass'y.

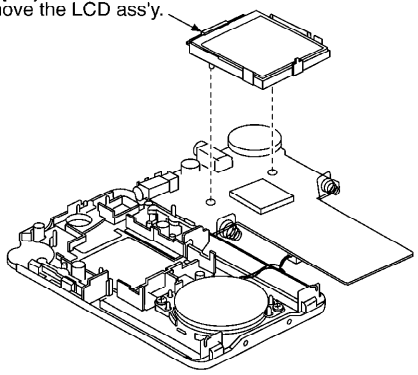


2.4. Replacement for the LCD

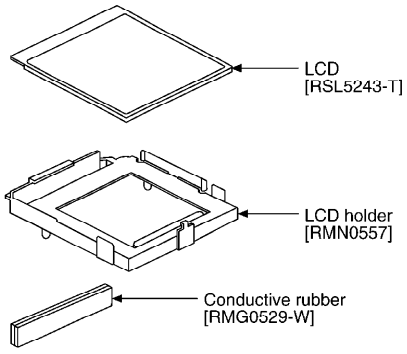
- Follow the (Step 1) - (Step 5) of item 2.1.

- Follow the (Step 1) - (Step 3) of item 2.2.

(Step 1)
Remove the LCD ass'y.



(Step 2)
Remove the LCD and conductive rubber from LCD holder.



3. Type Illustration of IC's, Transistors and Diodes

3.1. RR-QR100

3.2. RR-QR200

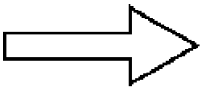
4. Schematic Diagram

4.1. Schmatic Diagram Notes

(This schematic diagram may be modified at any time with development of new technology.)

- S1:Divide (DIVIDE) switch.
- S2:Erase (ERASE) switch.
- S3:Play/stop, select (PLAY/STOP SEL) switch .
- S4:Recording, pause (REC, PAUSE) switch .
- S5:Hold (HOLD) switch in "OFF" position.
- S6:Batt. cover close det. switch.
- S7:Folder (FOLDER) switch .
- S9:Mode (MODE) switch.
- S11:Stop (STOP) switch.
- VR1:Volume control VR.
- DC voltage measurements are taken with electronics voltmeter.
The negative terminal of the battery provides negative meter connection point.
No mark.....Recording, ( ).....Playback
- Important safety notice
Components identified by ⚠ mark have special characteristics impotant for safety.
When replacing any of components, use only manufacturer's specified parts.
- Signal lines

: Source signal (ANALOG) line


: Source signal (DIGITAL) line

: Positive voltage line

4.2. Schematic Diagram (RR-QR100)

4.3. Schematic Diagram (RR-QR200)

5. Printed Circuit Board Diagram (RR-QR100)

6. Printed Circuit Board Diagram (RR-QR200)

7. Block Diagram

7.1. RR-QR100

7.2. RR-QR200

8. Operation Check Mode

This unit is equipped with the functions to check it to record or playback usually and the display of LCD.

- Caution!

When the checking operation is performed, all recorded data will be cleared.

Note:

When there are no available items of any track, the unit can not be operated to check it to record and playback.

To continue record and playback check, erase unneeded items.

8.1. To Enter Operation Check

1. Set the HOLD mode.

2. Press and hold down the STOP switch.

3. While hold down the STOP switch and press the MODE switch at short time.

4. Release the STOP switch.

Note:

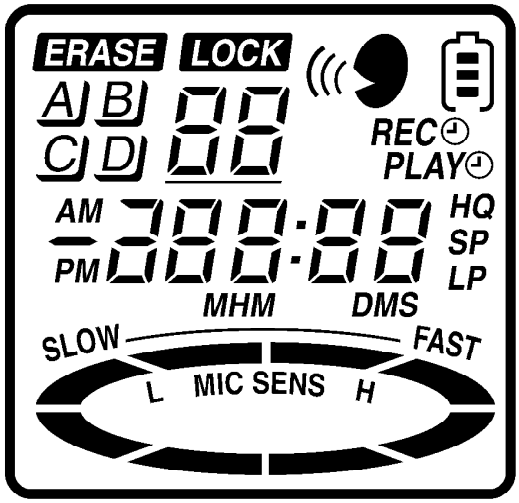
The item 2 to 4 shown above should be operated within a second.

5. After all segment of LCD lights up, the unit is entered to Operation Check Mode. During the Operation Check Mode, the Recording LED is blinking.

8.2. Operation Check Method

1. Check all segment of LCD lights up. Fig.2-1.

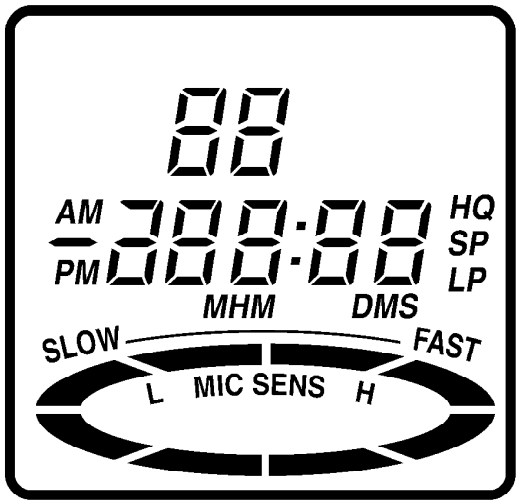
Fig.2-1.



2. Release the HOLD mode.

3. Check the display of LCD is displayed as shown below. Fig.2-2.

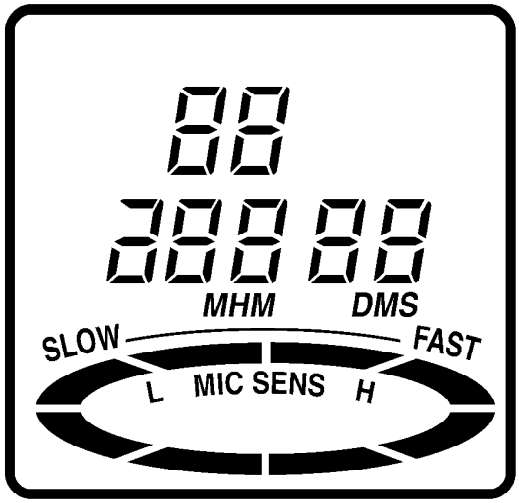
Fig.2-2.



4. Press the MODE switch.

5. Check the display of LCD is displayed as shown below. Fig.2-3.

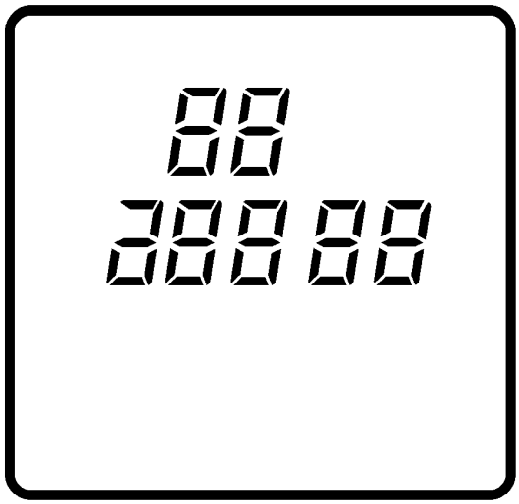
Fig.2-3.



6. Press the FOLDER switch.

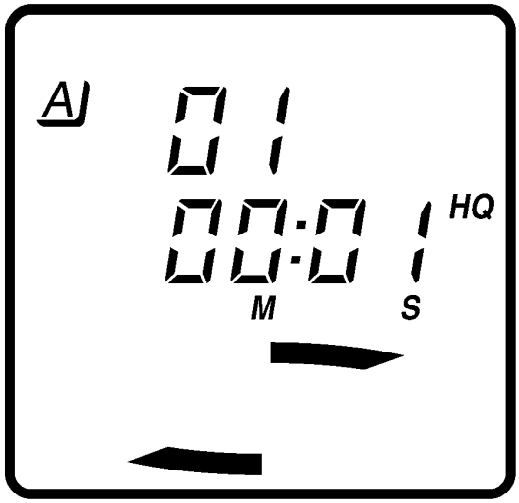
7. Check the display of LCD is displayed as shown below. Fig.2-4.

Fig.2-4.



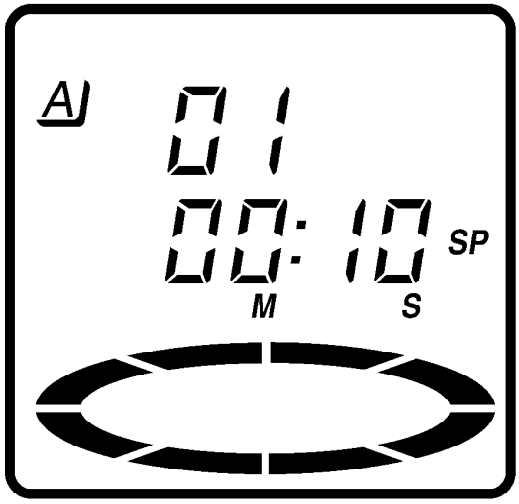
8. Press the REC switch and record a voice. Fig.2-5.

Fig.2-5.



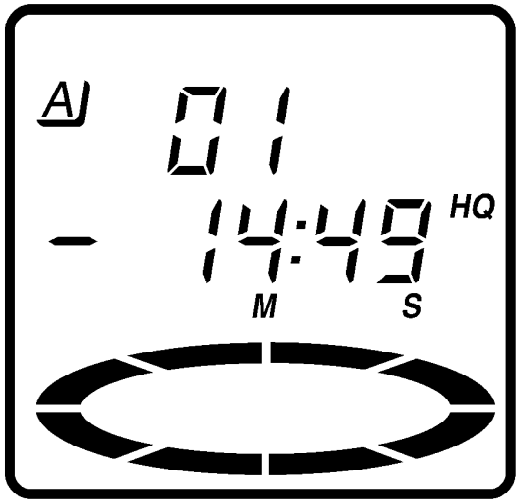
9. Press the STOP switch.
10. The display of LCD as shown below is 10 seconds the recording. Fig.2-6.

Fig.2-6.



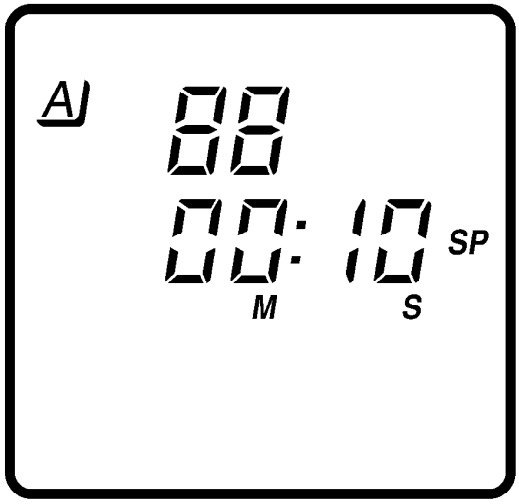
11. Press the ERACE switch to playback.
12. In playback, check the display of LCD is displayed as shown below. (The display of LCD is difference from the shown below by the time of recording.) Fig.2-7.
13. In playback, check the unit to be fast playback operation when the DIVIDE switch is pressed.

Fig.2-7.



14. When the playback of 10 seconds recording is finished, the display of LCD is displayed as shown below. Fig.2-8.

Fig.2-8.

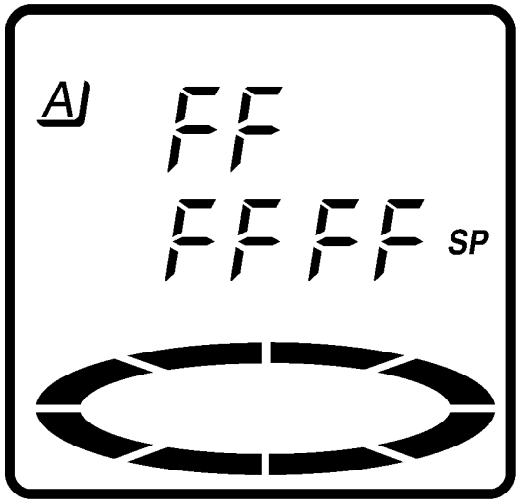


15. Pressing the PLAY/STOP and select dial continuously. The format is started.

Note:

The format is started once, all recorded data in the Flash Memory will be cleared. Fig.2-9.

Fig.2-9.



16. Operation Check Mode is canceled when the battery cover is opened.

9. Troubleshooting

9.1. Unit won´t play

-Checking the Analog System-

9.2. Cannot Delete

Take the steps outlined in <2> Check the Data Transmission Between IC 4 and IC 9 of 9.4.
Confirm that the pulse characteristics change in IC 9 pin 22 (/CE) and pin 3 (R/B) <RR-QR100> / pin 7 (R/B) <RR-QR200> during deleting.
When deleting one file alone = change during period of approximately 50 ms.
When deleting all files = change during period of approximately 200 ms.

9.3. Unit won´t play

-Checking the Analog System-

9.4. Unit won´t record

-Checking the Digital System-

<1> Check the Data Transmission Between IC 2 and IC 4.

1. Checking IC 2 Pulse Cycle and Clock Frequency.

Categories to be Measured	Pin No.	Mode		
		HQ	SP	LP
Pulse frequency*1	40(/CS)	8 ms	16 ms	8 ms
Clock frequency	46(VCK)	16 kHz	8 kHz	8 kHz

<2> Check the Data Transmission Between IC 4 and IC 9.

2. Check the IC 9 Pulse Cycle and the Clock Frequency.

Categories to be Measured	Pin No.	Mode		
		HQ	SP	LP
Pulse frequency*1	22(/CE)	64 ms	128 ms	409.6 ms
Clock frequency (RR-QR100)	20(SC)	500 kHz (approx.)	500 kHz (approx.)	500 kHz (approx.)
Clock frequency (RR-QR200)	8(SC)	500 kHz (approx.)	500 kHz (approx.)	500 kHz (approx.)

9.5. Unit won´t play

-Checking the Digital System-

<1> Check the Data Transmission Between IC 2 and IC 4.

1. Checking IC 2 Pulse Cycle and Clock Frequency.

Categories to be Measured	Pin No.	Mode		
		HQ	SP	LP
Pulse frequency*1	40(/CS)	8 ms	16 ms	51.2 ms
Clock frequency	46(VCK)	16 kHz	8 kHz	8 kHz

<2> Check the Data Transmission Between IC 4 and IC 9.

2. Check the IC 9 Pulse Cycle and the Clock Frequency.

Categories to be Measured	Pin No.	Mode		
		HQ	SP	LP
Pulse frequency*1	22(/CE)	64 ms	128 ms	409.6 ms
Clock frequency (RR-QR100)	20(SC)	500 kHz (approx.)	500 kHz (approx.)	500 kHz (approx.)
Clock frequency (RR-QR200)	8(SC)	500 kHz (approx.)	500 kHz (approx.)	500 kHz (approx.)

10. Terminal Function of IC's

10.1. IC4 (MN101C16ACE/D1) : / System Control / LCD Drive

No.	Mark	I/O Division	Function
1 ~ 4	COM3 ~ COM0	O	LCD segment signal outputs
5	VLC3	—	LCD reference voltage input termnal (connected to DGND)
6	VLC2	I	LCD reference voltage input terminal
7	VLC1	—	LCD reference voltage input terminal
8	VDD	I	Power supply terminal (3.3V)
9	OSC2	—	Not used, open.
10	OSC1	I	Main system clock input (f= 8MHz)
11	Vss	—	DGND terminal
12	XI	I	Crystal oscillator termial (f= 32.768kHz)
13	XO	O	Crystal oscillator terminal (f =32.768kHz)
14	MMOD	—	Mode select terminal (connevted to DGND)
15	VREF-	I	Reference voltage input terminal
16	AN0	I	Switch detection terminal (DIVIDE/FOLDER/STOP)
17	AN1	I	Switch detection terminal (ERASE/REC/PAUSE/ MODE)
18	KEY2	I	Switch detection terminal (HOLD)
19	AN3	I	Battery voltage input
20	PA4	I	FIFO baffer FULL detect signal input
21	PA5	I	LSI play monitor signal input
22	PA6	I	FIFO baffer MID detect signal input
23	PA7	I	FIFO baffer EMPTY detect signal input
24	VREF+	I	Reference voltage(+) input terminal
25	PO0	O	CODEC clock select signal output (L:5M/H:4M)
26	PO1	O	Flash-Memory output
27	PO2	I	Flash-Memory ready/busy

			input

No.	Mark	I/O Division	Function
28	PO3	O	LSI chip signal output
29	PO4	O	Flash-Memory chip output
30	PO5	O	command/data ratch output
31	PWB CHK	—	Not used, open.
32	/RST RU	I	Reset signal input
33	P10	O	LSI reset output
34	P11	O	Data command select signal output
35	P12	O	Beep output
36	P13	O	Clock select signal output
37	P14	O	Flash-Memory command data output
38	IRQ0	I	VAS voice detection results input
39	IRQ1	I	Select dial detection terminal
40	IRQ2	I	Select dial detection terminal
41	IRQ3	I	Switch detection terminal (H:Open, L:Close) (Battery cover open/close detection)
42	IRQ4	I	Battery detection terminal
43	P30	O	LP:L, HQ/SP:H output
44	P31	O	Flash-Memory control signal output
45	P32	O	LP:H output
46	/WE	O	COEDC/MEMORY parallel port output
47	/RE	O	Parallel port output/ Memory silial clock output
48	/CS	—	"Not used, open."
49	P53	O	AD convert drive L output
50	P54	O	Play power amp. drive output
51 ~ 58	A0 ~ A7	—	Not used, open.
59	P70	O	Mute signal output (H: Mute)
60	P71	O	REC LED drive signal (L: Rec)
61	P72	O	REC "L" output
62	P73	O	Clock oscillation circuit stop signal output

No.	Mark	I/O Division	Function
63	P74	O	Mic. sensitivity "H" set up output
64	P75	O	Playback signal output (H: Playback)
65,66	P76,P77	—	Not used, open.
67 ~ 74	D7 / ~ / D0	O	C/F data command BUS
75	SEG25	—	Not used, open.
76	SEG24	—	Not used, open.
77	SEG23	—	Not used, open.
78	SEG22	—	Not used, open.
79	SEG21	—	Not used, open.
80 ~ 100	SEG20 / ~ / SEG0	O	LCD segment signal output

11. Replacement Parts List

11.1. Replacement Parts List

- Important safety notice:
- Components identified by ⚠ mark have special characteristics important for safety.
- Furthermore, special parts which have purposes of fireretardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
- When replacing any of components, be sure to use only manufacture’s specified parts shown in the parts list.
- The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.) / Parts without these indications can be used for all areas.
- Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
- Resistance values are in ohms, unless specified otherwise, 1K= 1,000 (OHM), 1M=1,000k (OHM)
- The “<IA>” marks in Remarks indicate language of instruction manual. / <IA> : English, Germany, Italian, French, Czech, Polish, Spanish, Russian, Chinese, Arabic
- The marking <RTL> indicates that the Retention Time is limited for

this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention periodofavailability is dependant on the type of assembly , and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

- All parts are supplied by MESA.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RGV0231-H	KNOB,HOLD	1	
2	RHQ0051-K	SCREW	3	
3	RKW0592-Q	PANEL,LCD	1	
4	RYK0973H-H	REAR CABINET ASS'Y	1	(RR-QR100)
4	RYK0973J-H	REAR CABINET ASS'Y	1	(RR-QR200)
6	XTNR2+5CFN	SCREW	2	
7	RHQ0060-N	SCREW	2	
8	RJC40017	BATTERY TERMINAL(+)	1	
9	RJC80019	BATTERY TERMINAL(-)	1	
10	RJM0019	MICROPHONE	1	L0CBAB000036
11	RMG0529-W	CONDUCTIVE RUBBER	1	
12	RMN0557	LCD HOLDER	1	
13	RSL5243-T	LCD(LCD1)	1	
14	RAS3P16-U	SPEAKER	1	
15	REX0932-1	WIRE,SPEAKER	1	
17	RGL0461-Q	LED BRACKET	1	
18	RGU1796-H	BUTTON(L)	1	(RR-QR100)
18	RGU1796-N	BUTTON(L)	1	(RR-QR200)
19	RGU1797-H	BUTTON(R)	1	(RR-QR100)
19	RGU1797-N	BUTTON(R)	1	(RR-QR200)
20	RGU2004-S	BUTTON REC/STOP	1	
21	RJC94013-2	BATTERY TERMINAL(+/-)	1	
23	RYK1113-S	FRONT CABINET ASS'Y	1	(RR-QR100)
23	RYK1113-N	FRONT CABINET ASS'Y	1	(RR-QR200)
24	XQN2+CQ3	SCREW	2	
25	RMQ1039	SHEET	1	
A1	RQT5968-E	O/I BOOK	1	<IA>
C3	RCST0JY226RG	6.3V 22U	1	F3F0J2260002
C9	ECUENA104KBQ	10V 0.1U	1	F1G1A104A014
C10	ECUE1H270JCQ	50V 27P	1	F1G1H270A422
C11	ECUE1H332KBQ	50V 3300P	1	F1G1H332A446
C12	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C13	ECUVNJ474KBV	6.3V 0.47U	1	F1H0J474A002
C14	ECUENA104KBQ	10V 0.1U	1	F1G1A104A014
C15	ECUV1A474KBV	10V 0.47U	1	F1H1A474A028
C16	ECUE1C223KBQ	16V 0.022U	1	F1G1C223A044
C17	RCST0JY226RG	6.3V 22U	1	F3F0J2260002
C19	ECUVNJ105KBV	6.3V 1U	1	F1H0J105A002
C22	ECUE1E121KBQ	25V 120P	1	

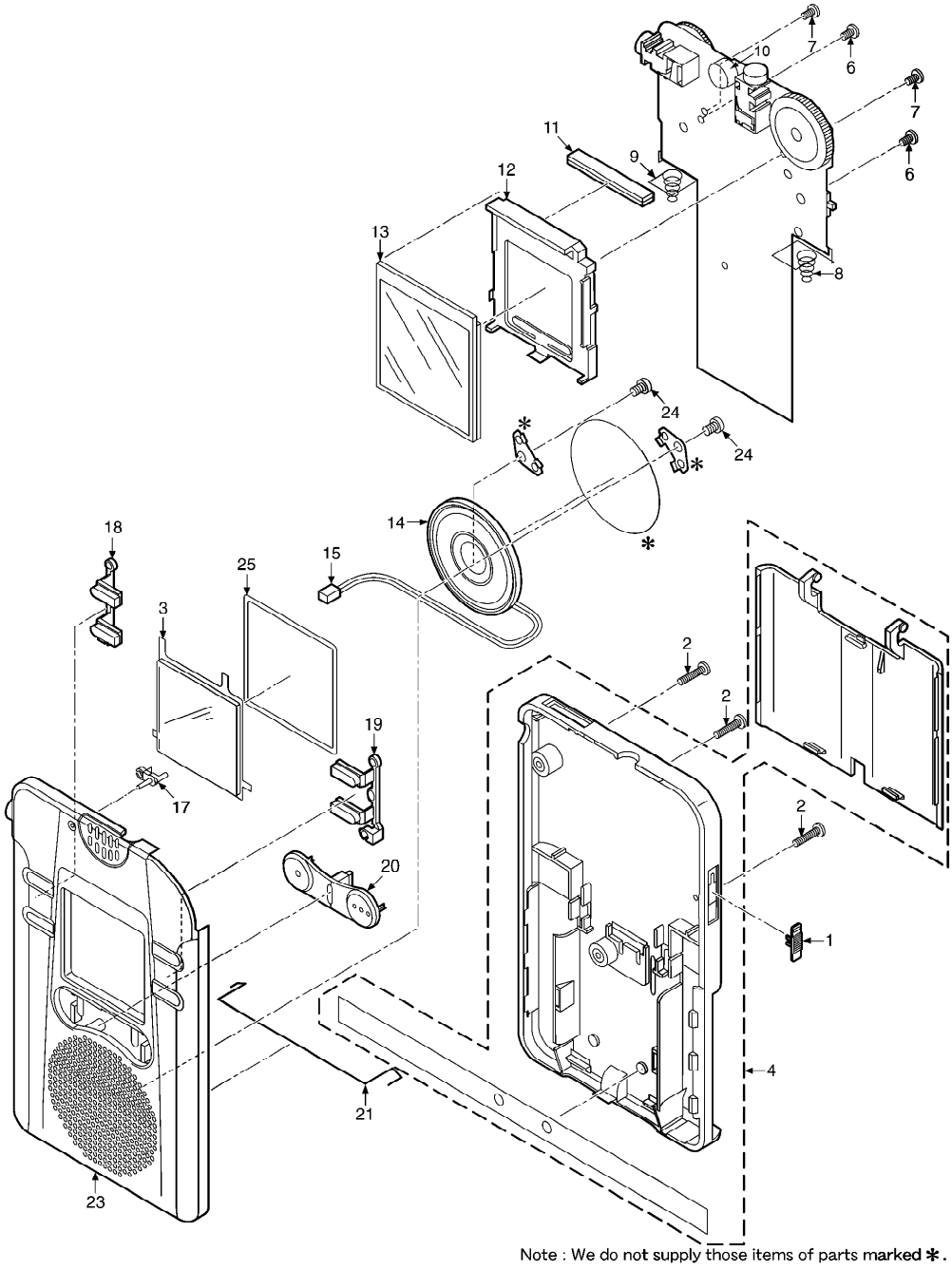
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C23	ECUVNJ105KBV	6.3V 1U	1	F1H0J105A002
C24	ECUVNC104KBV	16V 0.1U	1	
C25,26	F3H0J227A001	6.3V 220U	2	
C27	ECUENA104KBQ	10V 0.1U	1	F1G1A104A014
C28	RCST0JY226RG	6.3V 22U	1	F3F0J2260002
C29	ECUVNC104KBV	16V 0.1U	1	
C30	ECUV1H220JCV	50V 22P	1	
C31	ECUV1H120JCV	50V 12P	1	
C32	ECUVNC104KBV	16V 0.1U	1	
C33	RCST0JX107RG	6.3V 100U	1	F3G0J1070002
C34	ECUVNC104KBV	16V 0.1U	1	
C35	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C36	ECUVNA105KBV	10V 1U	1	F1H1A105A028
C37,38	F3H0J227A001	6.3V 220U	2	
C39	ECUE1H332KBQ	50V 3300P	1	F1G1H332A446
C40	ECST0JY106RR	6.3V 10U	1	ECST0JY106R
C41	ECUVNC104KBV	16V 0.1U	1	
C42	ECUV1H151JCV	50V 150P	1	(RR-QR100)
C42	ECUE1H151JCQ	50V 150P	1	ECJ0EC1H151J (RR-QR200)
C44,45	ECUVNC104KBV	16V 0.1U	2	
C46	ECUE1H120JCQ	50V 12P	1	
C47	ECUVNC104KBV	16V 0.1U	1	
C48	ECUENA104KBQ	10V 0.1U	1	F1G1A104A014
C49	ECUV1H102KBV	50V 1000P	1	
C50	ECUE1H102KBQ	50V 1000P	1	F1G1H102A457
C51	F1G1C2230004	16V 0.22U	1	
C53	ECUE1H181KBQ	50V 180P	1	
C54	ECUENA104KBQ	10V 0.1U	1	F1G1A104A014
C55	ECUVNJ105KBV	6.3V 1U	1	F1H0J105A002
C56	ECUENC183KBQ	16V 0.018U	1	F1G1C183A004
C57	ECUE1C103KBQ	16V 0.01U	1	
C58	ECUENA104KBQ	10V 0.1U	1	F1G1A104A014
C59	ECUE1H331KBQ	50V 330P	1	F1G1H331A402
C60,61	ECUENA104KBQ	10V 0.1U	2	F1G1A104A014
C62	ECUV1H471KBV	50V 470P	1	F1H1H471A013
C63-68	ECUENA104KBQ	10V 0.1U	6	F1G1A104A014
C69-72	ECUE1E472KBQ	25V 4700P	4	F1G1E4720004
C73	ECUV1H101KCV	50V 100P	1	F1H1H101A720
C74	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C75	ECUE1C103KBQ	16V 0.01U	1	
C77	ECUVNJ105KBV	6.3V 1U	1	F1H0J105A002
C78	RCST0JY226RG	6.3V 22U	1	F3F0J2260002
C79	ECUENA104KBQ	10V 0.1U	1	F1G1A104A014
C80	ECUE1H222KBQ	50V 2200P	1	F1G1H222A457
C81	ECUENA104KBQ	10V 0.1U	1	F1G1A104A014
C82	ECUE1H101KBQ	50V 100P	1	
CN1	RJT120C02T	CONNECTOR(2P)	1	K1KA02B00053
D1	CL170HRCDT	LED	1	B3AAB0000052
D2	MA735TX	DIODE	1	MA2Q73500L
D3	MA143TX	DIODE	1	MA3J14300L
D5	MA735TX	DIODE	1	MA2Q73500L
D6-D8	MA111TX	DIODE	3	MA2J11100L

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
D10	MA111TX	DIODE	1	MA2J11100L
IC2	ML2301GA	IC,MICRO COMPUTER	1	
IC3	TC7WU04FUT2L	IC,TRIPLE INVERTER	1	
IC4	MN101C16ACD1	IC,SYSTEM CONTROL/LCD DRIVE	1	(RR-QR100)
IC4	MN101C16ACE	IC,SYSTEM CONTROL/LCD DRIVE	1	(RR-QR200)
IC5	TC7W74FUT2L	IC,D-TYPE FLIP FLOP	1	
IC6	XC61CN2002MR	IC,RESET	1	C0EBD0000051
IC7	TC7WH157FUTL	IC,SWITCHING	1	C0JBAR000191
IC8	XC6368B101MR	IC,DC-DC CONVERTER	1	C0DBAZZ00032
IC9	HN29W6411TT	IC,64M bit MEMORY	1	C3FBPC000005 (RR-QR100)
IC9	C3FBQC000004	IC,128M bit MEMORY	1	(RR-QR200)
IC10,11	TC7WH157FUTL	IC,SWITCHING	2	C0JBAR000191
IC12	XC61CN1802MR	IC,RESET	1	
IC13	NJM2107FTE1	IC,MIC AMP	1	C0ABAB000040
IC14	C0ABZA000033	IC,POWER AMP	1	
IC16	NJM2107FTE1	IC,POWER AMP	1	C0ABAB000040
JK1	K2HC104E0004	JACK,EARPHONE	1	
JK2	K1CB102E0002	JACK,MIC	1	
L1	RL09U028T-T	COIL	1	G1C470MA0011
L2,L3	RLBV601V-W	COIL	2	J0JCC0000059
P1	RPK1593	GIFT BOX	1	(RR-QR100)
P1	RPK1594	GIFT BOX	1	(RR-QR200)
P2	RPF0208	PROTECTION COVER	1	
PCB1	REP3206A-M	P.C.B.ASS'Y	1	(RR-QR100) (RTL)
PCB1	REP3206B-M	P.C.B.ASS'Y	1	(RR-QR200) (RTL)
Q2	DTC144TUA106	TRANSISTOR	1	B1GBCFNA0010
Q3	2SK1958T1	TRANSISTOR	1	B1CFHA000001
Q8	2SD1119RTX	TRANSISTOR	1	2SD11190RL
Q10	2SB1295-6-TB	TRANSISTOR	1	B1ADKB000001
Q13,14	2SK1958T1	TRANSISTOR	2	B1CFHA000001
Q16	DTC144TETL	TRANSISTOR	1	B1GBCFNA0001
Q17	2SD1819ASTX	TRANSISTOR	1	2SD1819ASL
Q20	2SB1295-6-TB	TRANSISTOR	1	B1ADKB000001
Q22	2SK1958T1	TRANSISTOR	1	B1CFHA000001
Q23	2SD1819ASTX	TRANSISTOR	1	2SD1819ASL
Q25-27	2SK1958T1	TRANSISTOR	3	B1CFHA000001
R6	ERJ2GEJ563X	1/4W 56K	1	
R8	ERJ3GEYJ183V	1/16W 18K	1	D0GB183JA002
R9	ERJ2GEJ102X	1/4W 1K	1	ERJ2RMJ102X
R10,11	ERJ2GEJ222X	1/4W 2.2K	2	ERJ2RMJ222X
R12	ERJ2GEJ225X	1/4W 2.2M	1	ERJ2RMJ225X
R14	ERJ2GEJ105X	1/4W 1M	1	D0GA105JA001
R15	ERJ2GEJ272X	1/4W 2.7K	1	ERJ2RMJ272X
R16	ERJ2GEJ334X	1/4W 330K	1	ERJ2RMJ334X
R17	ERJ3GEYJ681V	1/16W 680	1	D0GB681JA002
R18,19	ERJ3GEYJ105V	1/16W 1M	2	
R20	ERJ3GEYJ681V	1/16W 680	1	D0GB681JA002

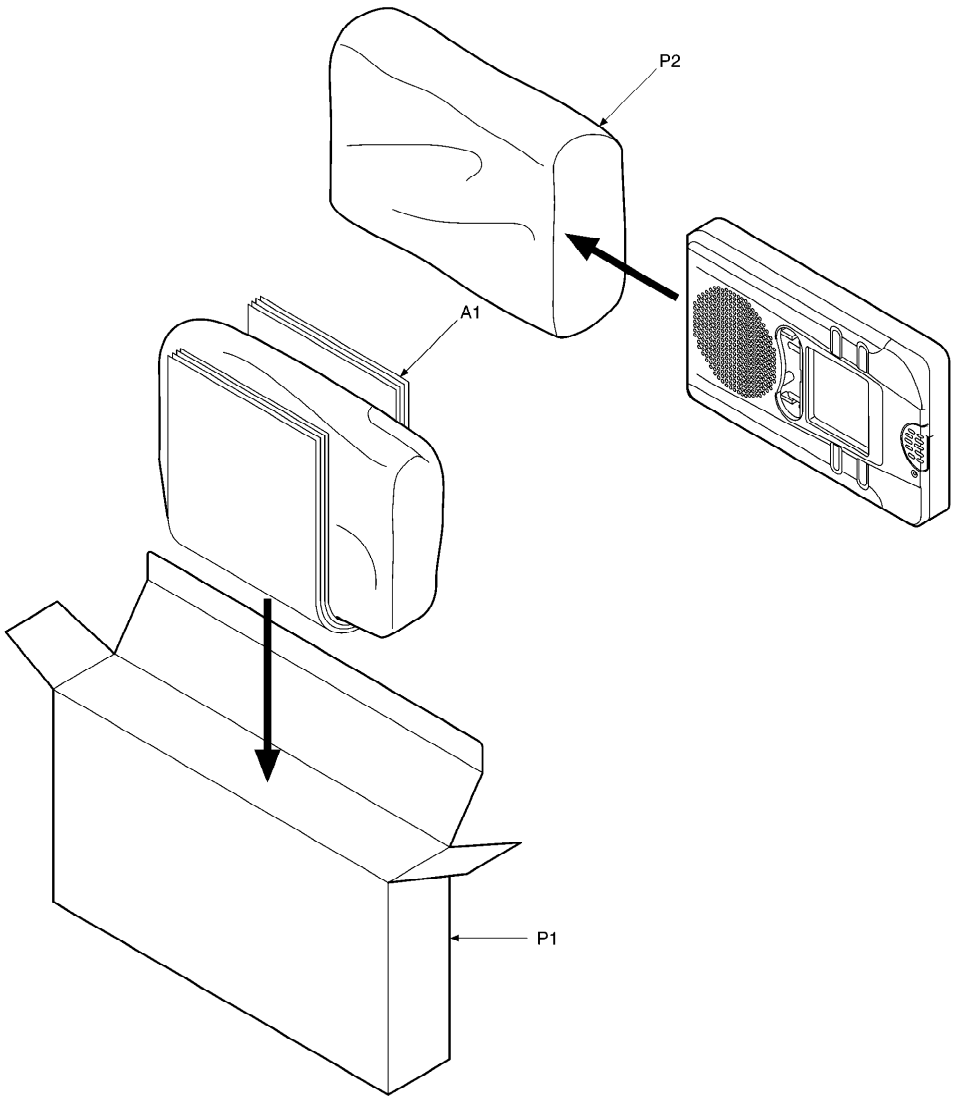
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R21-23	ERJ2GEJ474X	1/4W 470K	3	ERJ2RMJ474X
R24,25	ERJ3GEYJ104Z	1/16W 100K	2	
R26	ERJ3GEYJ683V	1/16W 68K	1	D0GB683JA002
R27	ERJ2GEJ124X	1/4E 120K	1	ERJ2RMJ124X
R28	ERJ2GEJ104X	1/4W 100K	1	ERJ2RMJ104X
R29	ERJ3GEYJ104Z	1/16W 100K	1	
R30	ERJ3GEYJ683V	1/16W 68K	1	D0GB683JA002
R31	ERJ3GEYJ124V	1/16W 120K	1	D0GB124JA002
R32	ERJ2GEJ334X	1/4W 330K	1	ERJ2RMJ334X
R33,34	ERJ2GEJ105X	1/4W 1M	2	D0GA105JA001
R36	ERJ3GEYJ104Z	1/16W 100K	1	
R37	ERJ3GEYJ152V	1/16W 1.5K	1	
R38	ERJ2GEJ105X	1/4W 1M	1	D0GA105JA001
R39	ERJ3GEYJ472V	1/16W 4.7K	1	D0GB472JA002
R40	ERJ2GEJ102X	1/4W 1K	1	ERJ2RMJ102X
R41	ERJ3GEYJ100V	1/16W 10	1	
R42	ERJ3GEYJ104Z	1/16W 100K	1	
R43	ERJ2GEJ104X	1/4W 100K	1	ERJ2RMJ104X
R44	ERJ2GEJ102X	1/4W 1K	1	ERJ2RMJ102X
R47	ERJ2GED105X	1/4W 1M	1	ERJ2RKD105X
R48	ERJ3RED434V	1/16W 430K	1	
R49	ERJ2GEJ105X	1/4W 1M	1	D0GA105JA001 (RR-QR100)
R49	ERJ2GEJ222X	1/4W 2.2K	1	ERJ2RMJ222X (RR-QR200)
R51	ERJ3GEYJ102V	1/16W 1K	1	ERJ3GEYJ102Z
R52	ERJ2GEJ100X	1/4W 10	1	ERJ2RMJ100X
R53	ERJ2GEJ103X	1/4W 10K	1	ERJ2RMJ103X
R54	ERJ2GEJ154X	1/4W 150K	1	ERJ2RMJ154X
R55	ERJ2GEJ222X	1/4W 2.2K	1	ERJ2RMJ222X
R56	ERJ2GEJ152X	1/4W 1.5K	1	ERJ2RMJ152X
R57	ERJ2RMJ560X	1/4W 56	1	
R58	ERJ2GEJ332X	1/4W 3.3K	1	ERJ2RMJ332X
R60	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R61	ERJ2GEJ154X	1/4W 150K	1	ERJ2RMJ154X
R62	ERJ2GEJ103X	1/4W 10K	1	ERJ2RMJ103X
R64	ERJ2GEJ333X	1/4W 33K	1	ERJ2RMJ333X
R65	ERJ3GEYJ104Z	1/16W 100K	1	
R66	ERJ2GEJ222X	1/4W 2.2K	1	ERJ2RMJ222X
R68	ERJ2GEJ105X	1/4W 1M	1	D0GA105JA001
R69	ERJ3GEYJ100V	1/16W 10	1	
R70,71	ERJ2GEJ104X	1/4W 100K	2	ERJ2RMJ104X
R72	ERJ2GEJ101X	1/4W 100	1	ERJ2RMJ101X
R73	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R74,75	ERJ2GEJ103X	1/4W 10K	2	ERJ2RMJ103X
R76	ERJ2GED183X	1/4W 18K	1	D0HA183ZA002
R77,78	ERJ2GEJ223X	1/4W 22K	2	ERJ2RMJ223X
R79	ERJ2GEJ103X	1/4W 10K	1	ERJ2RMJ103X
R80	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R82	ERJ2GEJ223X	1/4W 22K	1	ERJ2RMJ223X
R83-86	ERJ2GED183X	1/4W 18K	4	D0HA183ZA002
R87-90	ERJ2GEJ682X	1/4W 6.8K	4	ERJ2RMJ682X
R91	ERJ2GEJ683X	1/4W 68K	1	ERJ2RMJ683X
R92	ERJ2GEJ223X	1/4W 22K	1	ERJ2RMJ223X
R93	ERJ2GEJ103X	1/4W 10K	1	ERJ2RMJ103X
R94	ERJ2GEJ104X	1/4W 100K	1	ERJ2RMJ104X

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R95	ERJ2GEJ103X	1/4W 10K	1	ERJ2RMJ103X
S1	EVQPLMA15	SW,DIVIDE	1	
S2	EVQPLMA15	SW,ERASE	1	
S3	RFKDNS300R-S	SW,JOG DIAL ASS'Y	1	
S4	EVQPLMA15	SW,REC/PAUSE	1	
S5	RSS2A010-1A	SW,HOLD	1	K0D112B00071
S6	RSH1A039-A	SW,B.COVER CLOSE DET.	1	K0L1BA000037
S7	EVQPLMA15	SW,FOLDER	1	
S9	EVQPLMA15	SW,MODE	1	
S11	EVQPLMA15	SW,STOP	1	
VR1	EVUTUHB07C54	VR,VOLUME	1	
X1	RSXY8M19M01T	CERAMIC OSC	1	H2D819400001
X2	RSXC32K7L04T	CRYSTAL OSC	1	H0J327200048
X3	H2D102500001	CERAMIC OSC	1	

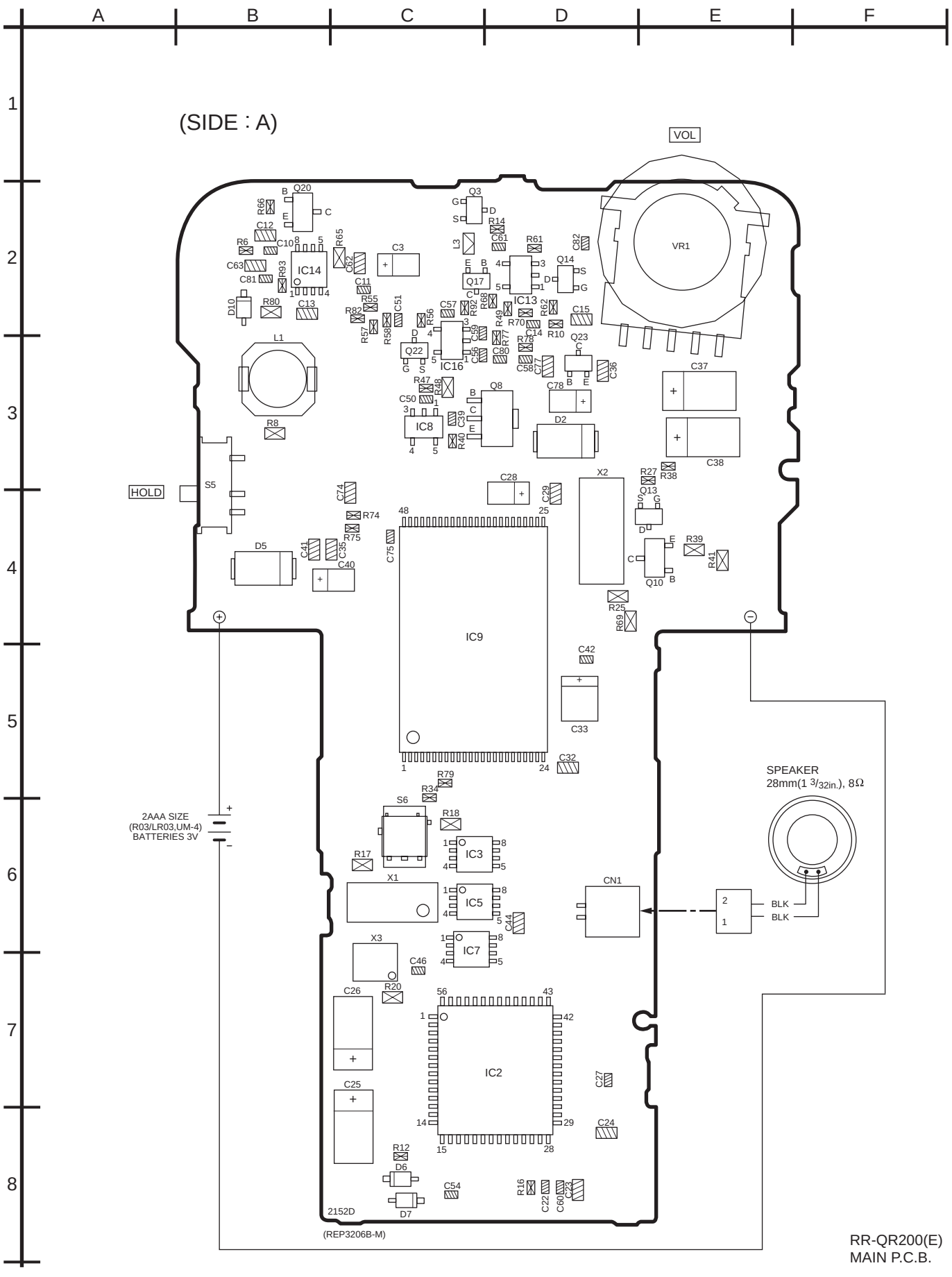
12. Cabinet Parts Location

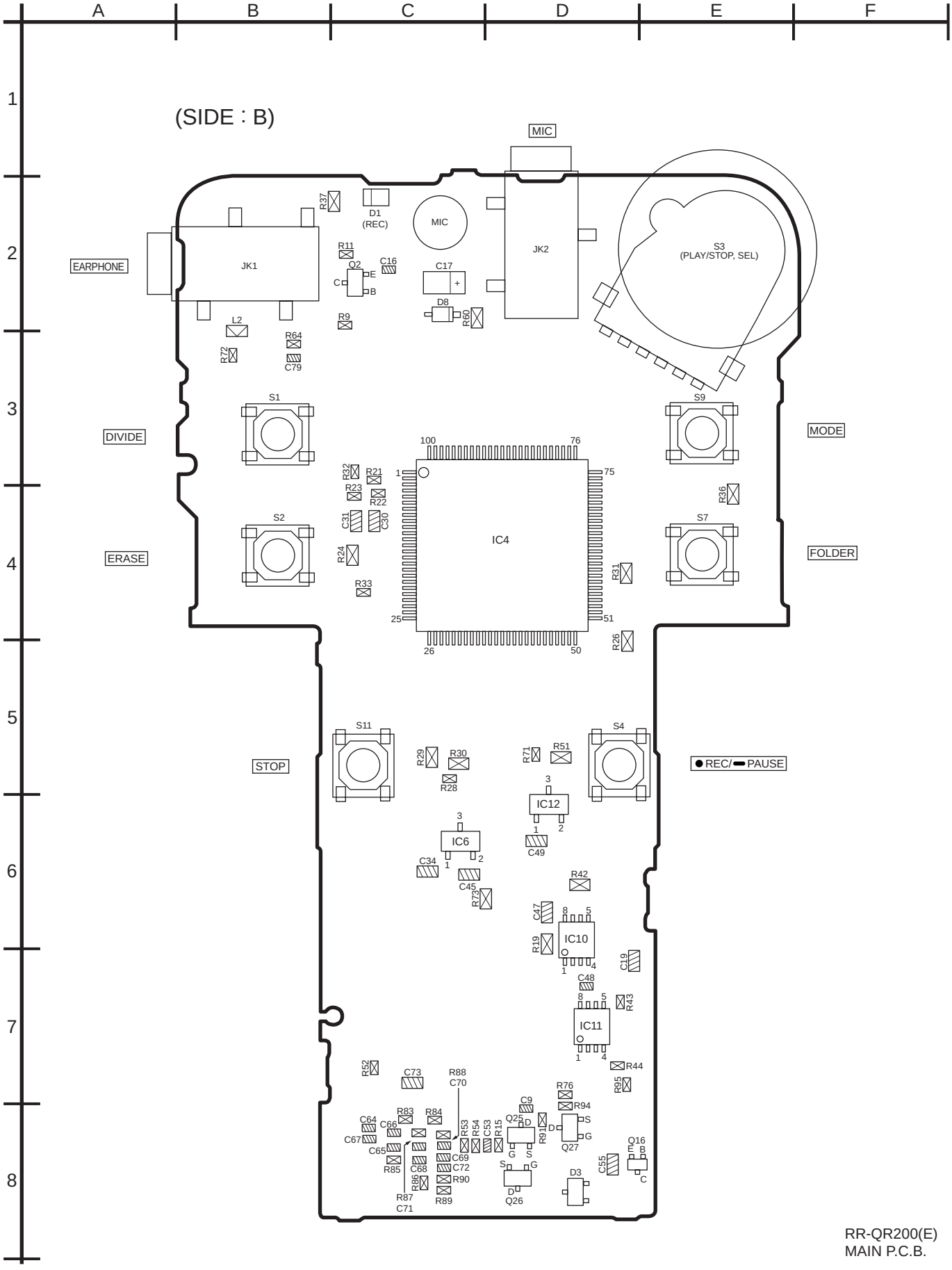


13. Packaging

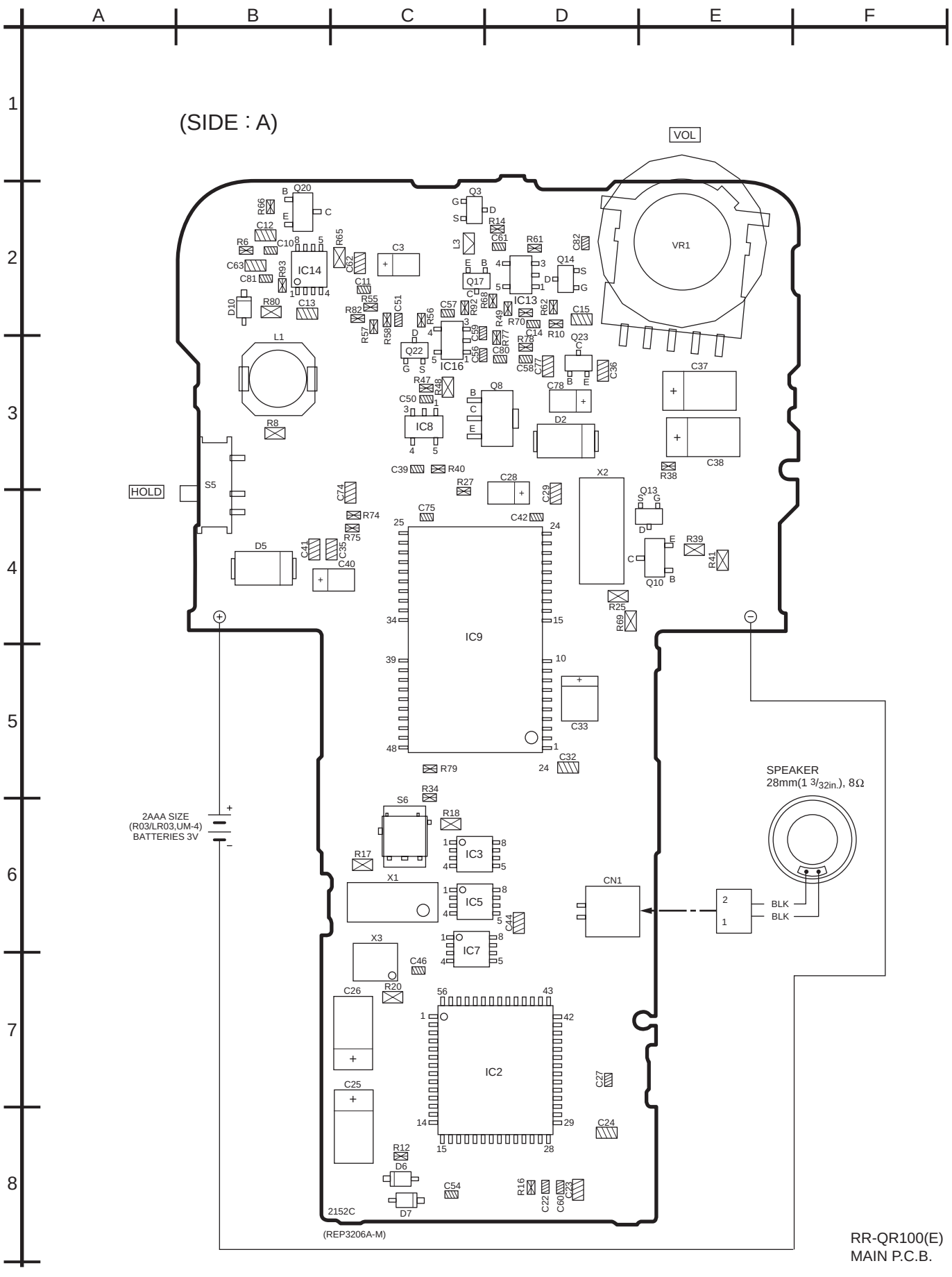


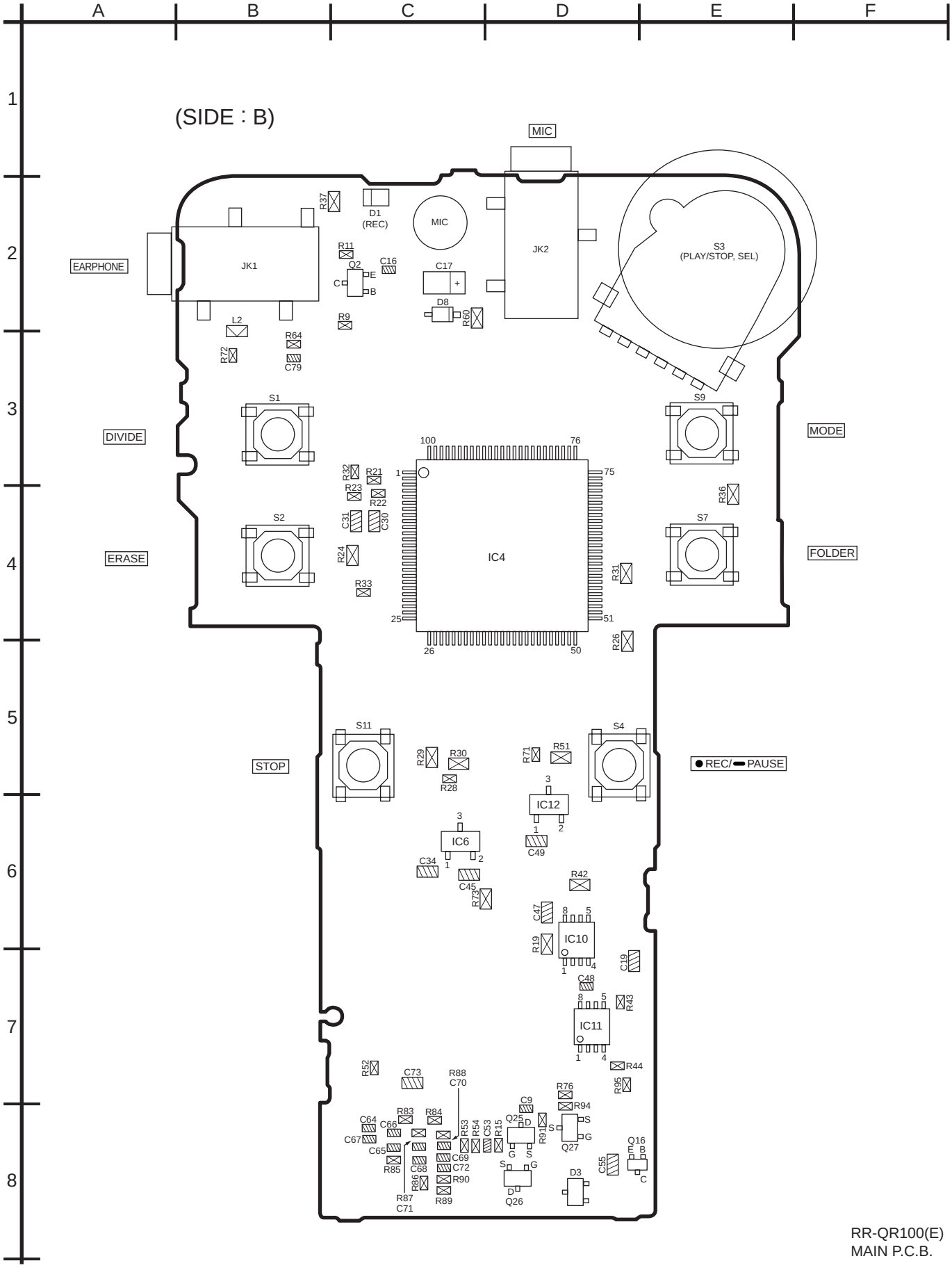
K010700000YH


A
B
C
D
E
F
1
2
3
4
5
6
7
8
(SIDE : A)
VOL
VR1
IC14
IC13
IC16
IC8
IC9
IC3
IC5
IC7
IC2
Q20
Q3
Q17
Q14
Q22
Q8
Q23
Q13
Q10
L1
L3
S5
HOLD
D5
D2
D10
D6
D7
X1
X2
X3
S6
CN1
SPEAKER
28mm(1 3/32in.), 8Ω
BLK
BLK
2AAA SIZE
(R03/LR03,UM-4)
BATTERIES 3V
2152D
(REP3206B-M)
RR-QR200(E)
MAIN P.C.B.

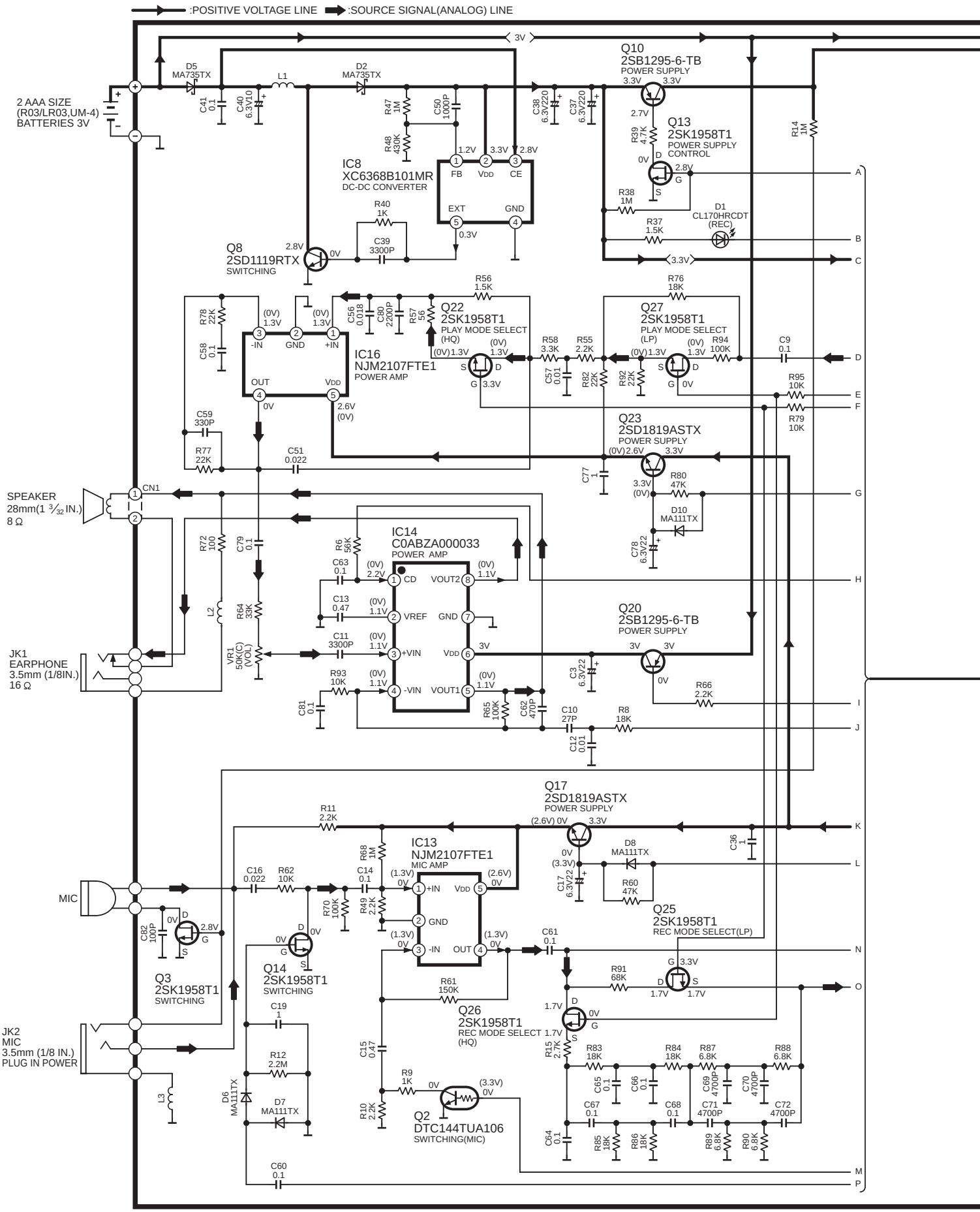


RR-QR200(E)
MAIN P.C.B.

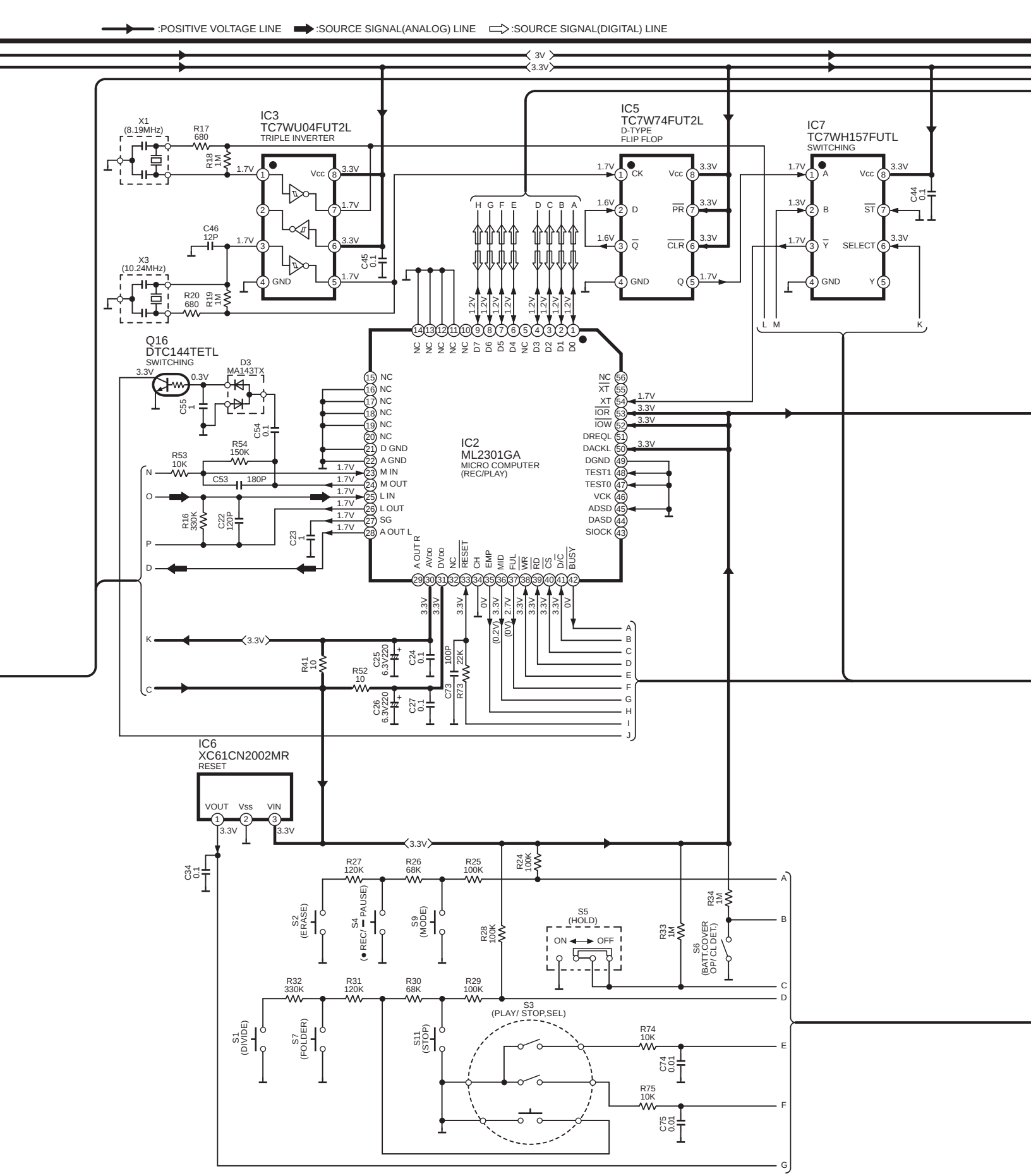

A
B
C
D
E
F
1
2
3
4
5
6
7
8
(SIDE : A)
VOL
VR1
IC14
IC13
IC16
IC8
IC9
IC3
IC5
IC7
IC2
Q20
Q3
Q17
Q14
Q22
Q8
Q23
Q13
Q10
L1
L3
S5
HOLD
S6
D5
D2
D10
D6
D7
X1
X2
X3
CN1
SPEAKER
28mm(1 3/32in.), 8Ω
BLK
BLK
2AAA SIZE
(R03/LR03,UM-4)
BATTERIES 3V
2152C
(REP3206A-M)
RR-QR100(E)
MAIN P.C.B.

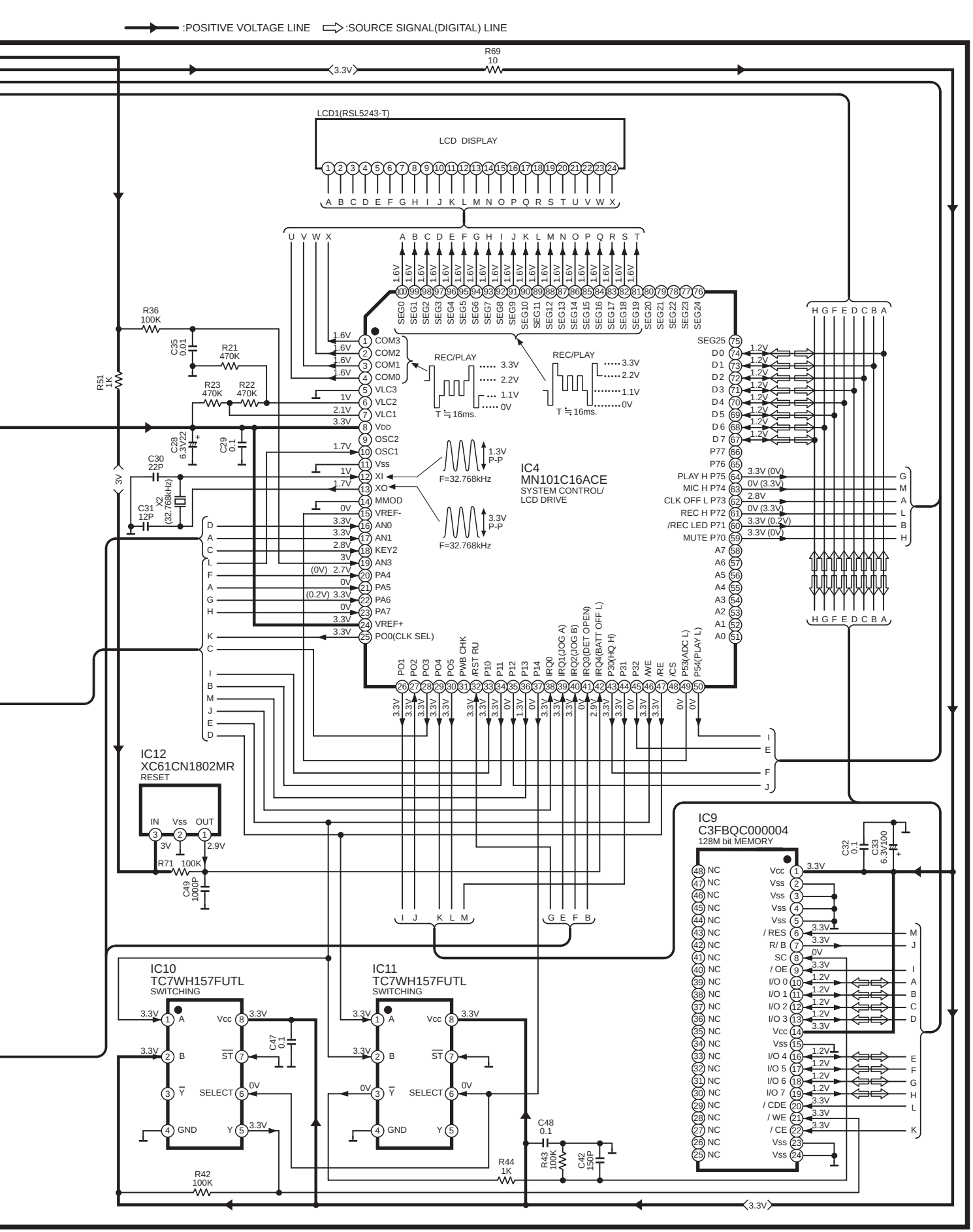


RR-QR100(E)
MAIN P.C.B.

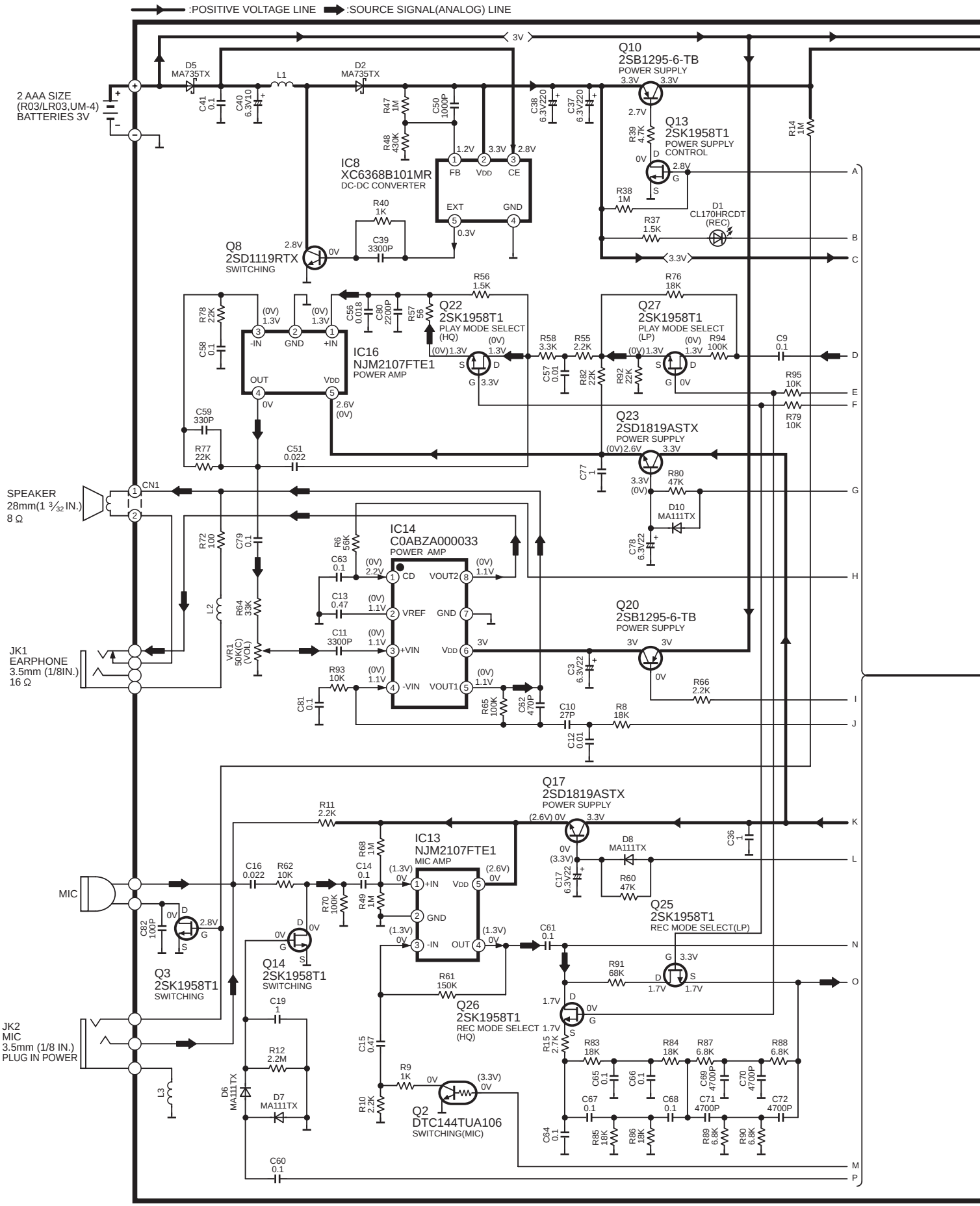


RR-QR200(E) MAIN SCHEMATIC DIAGRAM

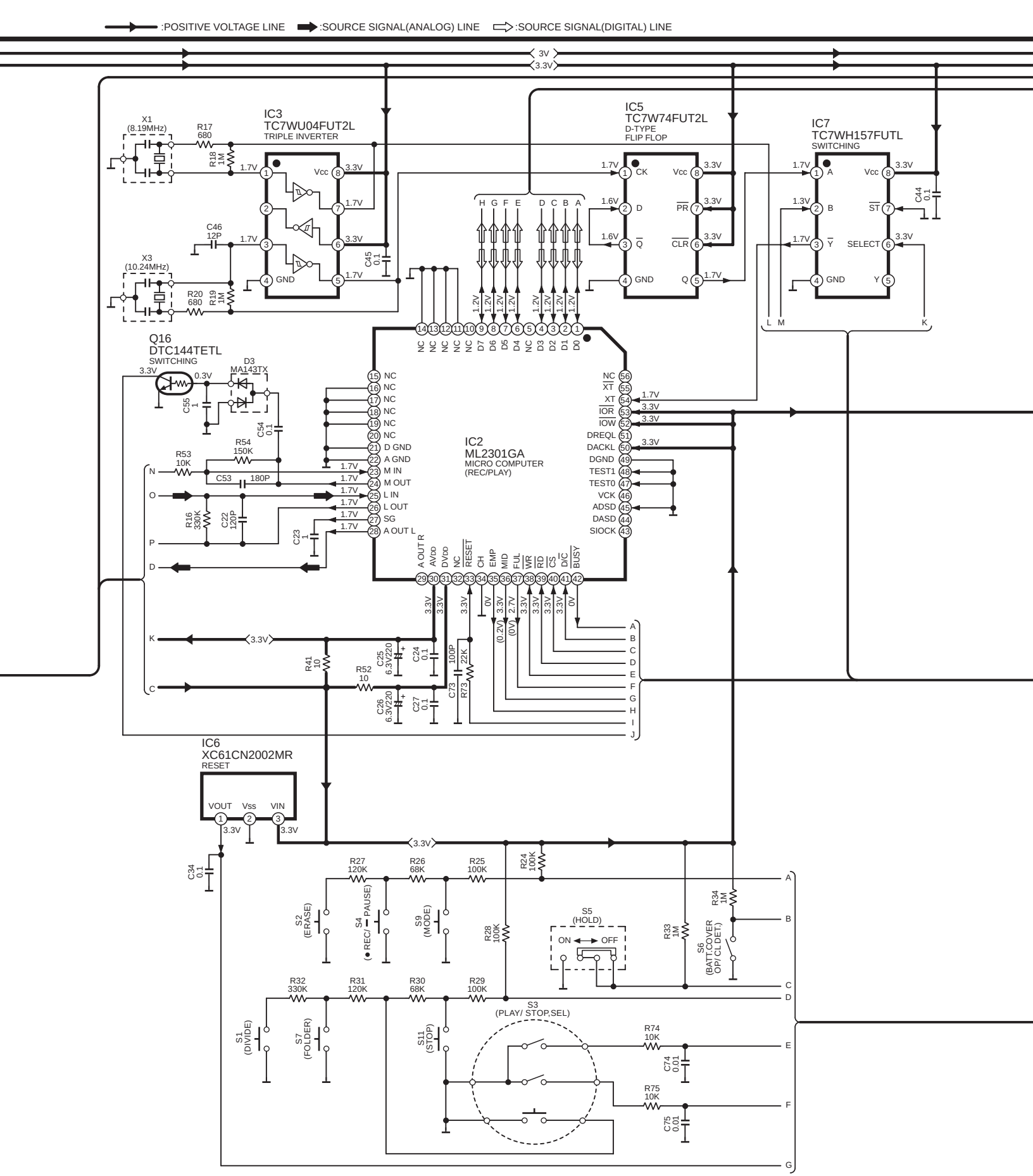

:POSITIVE VOLTAGE LINE
:SOURCE SIGNAL(ANALOG) LINE
:SOURCE SIGNAL(DIGITAL) LINE
3V
3.3V
IC3
TC7WU04FUT2L
TRIPLE INVERTER
IC5
TC7W74FUT2L
D-TYPE
FLIP FLOP
IC7
TC7WH157FUTL
SWITCHING
X1
(8.19MHz)
X3
(10.24MHz)
Q16
DTC144TETL
SWITCHING
D3
MA143TX
IC2
ML2301GA
MICRO COMPUTER
(REC/PLAY)
IC6
XC61CN2002MR
RESET
VOUT
Vss
VIN
S1 (DIVIDE)
S2 (ERASE)
S3 (PLAY/ STOP,SEL)
S4 (● REC/ ❙❙ PAUSE)
S5 (HOLD)
S6 (BATT.COVER OP/ CL DET)
S7 (FOLDER)
S9 (MODE)
S11 (STOP)

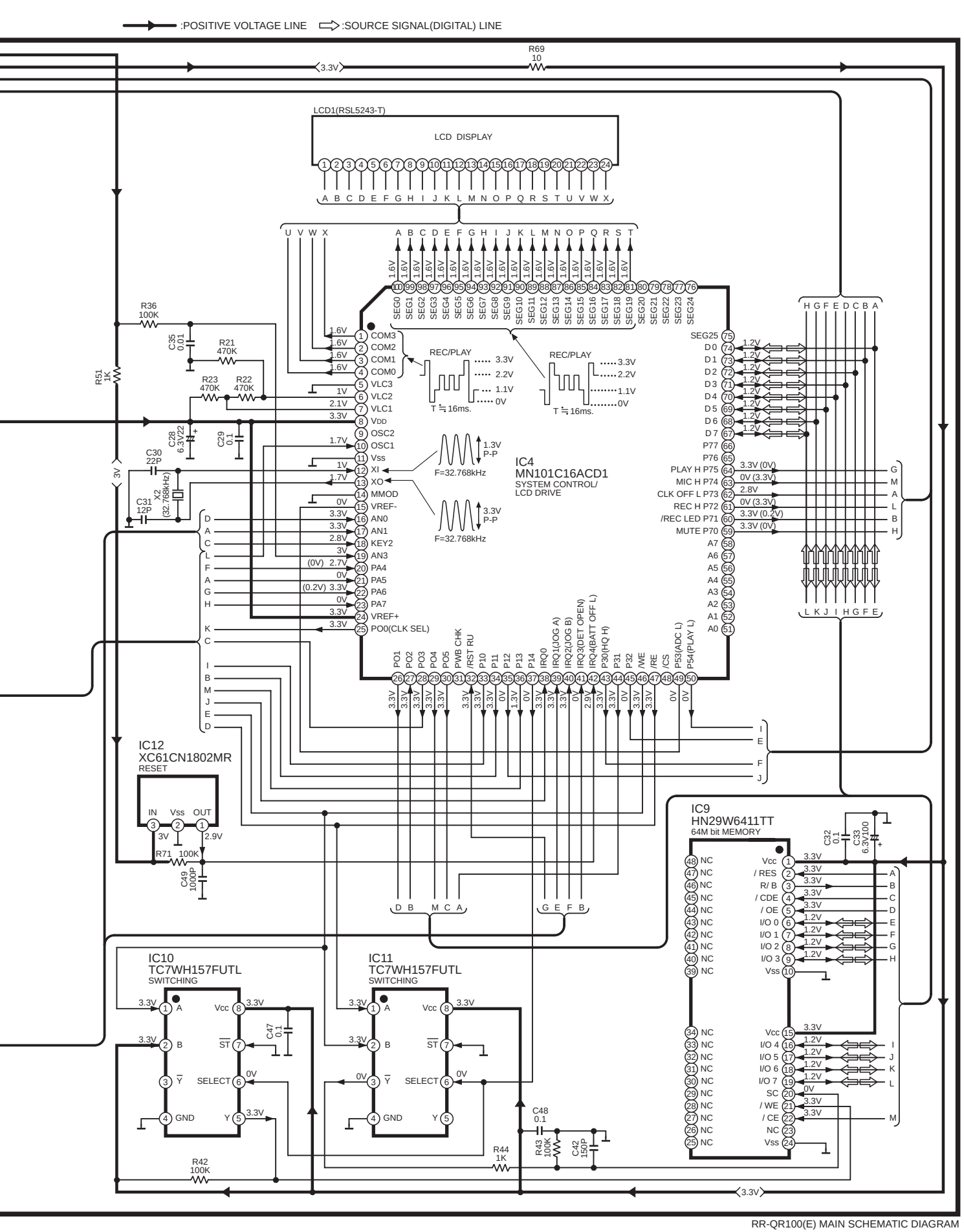


RR-QR200(E) MAIN SCHEMATIC DIAGRAM

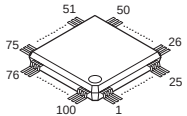


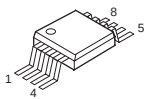
RR-QR100(E) MAIN SCHEMATIC DIAGRAM


:POSITIVE VOLTAGE LINE
:SOURCE SIGNAL(ANALOG) LINE
:SOURCE SIGNAL(DIGITAL) LINE
3V
3.3V
IC3
TC7WU04FUT2L
TRIPLE INVERTER
IC5
TC7W74FUT2L
D-TYPE
FLIP FLOP
IC7
TC7WH157FUTL
SWITCHING
IC2
ML2301GA
MICRO COMPUTER
(REC/PLAY)
Q16
DTC144TETL
SWITCHING
D3
MA143TX
IC6
XC61CN2002MR
RESET
X1
(8.19MHz)
X3
(10.24MHz)
S1
(DIVIDE)
S2
(ERASE)
S3
(PLAY/ STOP,SEL)
S4
(● REC/ ❙❙ PAUSE)
S5
(HOLD)
S6
(BATT.COVER OP/ CL DET.)
S7
(FOLDER)
S9
(MODE)
S11
(STOP)


:POSITIVE VOLTAGE LINE
:SOURCE SIGNAL(DIGITAL) LINE
R69
10
3.3V
LCD1(RSL5243-T)
LCD DISPLAY
IC4
MN101C16ACD1
SYSTEM CONTROL/
LCD DRIVE
REC/PLAY
3.3V
2.2V
1.1V
0V
T ≒ 16ms.
F=32.768kHz
1.3V P-P
3.3V P-P
IC12
XC61CN1802MR
RESET
IN Vss OUT
3V
2.9V
IC9
HN29W6411TT
64M bit MEMORY
IC10
TC7WH157FUTL
SWITCHING
IC11
TC7WH157FUTL
SWITCHING
SELECT
GND
R36 100K
R51 1K
R21 470K
R23 470K
R22 470K
R71 100K
R42 100K
R44 1K
R43 100K
C35 0.01
C28 6.3V22
C29 0.1
C30 22P
C31 12P
X2 (32.768kHz)
C47 0.1
C48 0.1
C42 150P
C49 1000P
C32 0.1
C33 6.3V100
COM3
COM2
COM1
COM0
VLC3
VLC2
VLC1
VDD
OSC2
OSC1
Vss
XI
XO
MMOD
VREF-
AN0
AN1
KEY2
AN3
PA4
PA5
PA6
PA7
VREF+
PO0(CLK SEL)
SEG25
D0
D1
D2
D3
D4
D5
D6
D7
P77
P76
PLAY H P75
MIC H P74
CLK OFF L P73
REC H P72
/REC LED P71
MUTE P70
A7
A6
A5
A4
A3
A2
A1
A0
PO1
PO2
PO3
PO4
PO5
PWB CHK
/RST RU
P10
P11
P12
P13
P14
IRQ0
IRQ1(JOG A)
IRQ2(JOG B)
IRQ3(DET OPEN)
IRQ4(BATT OFF L)
P30(HQ H)
P31
P32
/WE
/RE
/CS
P53(ADC L)
P54(PLAY L)
NC
Vcc
/ RES
R/ B
/ CDE
/ OE
I/O 0
I/O 1
I/O 2
I/O 3
Vss
I/O 4
I/O 5
I/O 6
I/O 7
SC
/ WE
/ CE
RR-QR100(E) MAIN SCHEMATIC DIAGRAM

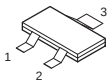
MN101C16ACD1



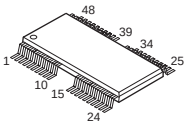


TC7WH157FUTL
TC7W74FUT2L
TC7WU04FUT2L
C0ABZA000033

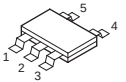
XC61CN1802MR
XC61CN2002MR



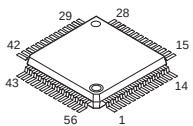
HN29W6411TT

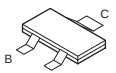


NJM2107FTE1
XC6368B101MR



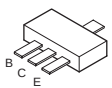
ML2301GA



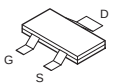


DTC144TETL
DTC144TUA106
2SB1295-6-TB
2SD1819ASTX

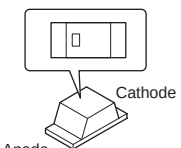
2SD1119RTX



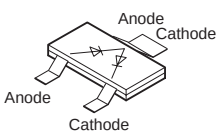
2SK1958T1



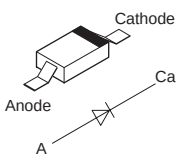
CL170HRCDT



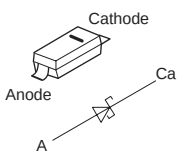
MA143TX



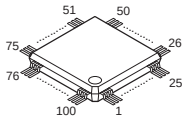
MA111TX

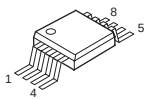


MA735TX



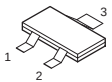
MN101C16ACE



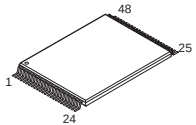


TC7WH157FUTL
TC7W74FUT2L
TC7WU04FUT2L
C0ABZA000033

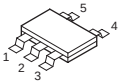
XC61CN1802MR
XC61CN2002MR



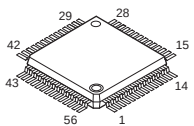
C3FBQC000004

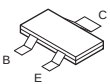


NJM2107FTE1
XC6368B101MR



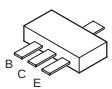
ML2301GA



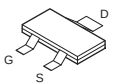


DTC144TETL
DTC144TUA106
2SB1295-6-TB
2SD1819ASTX

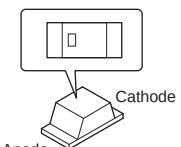
2SD1119RTX



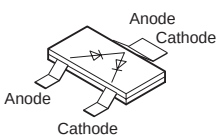
2SK1958T1



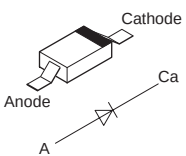
CL170HRCDT



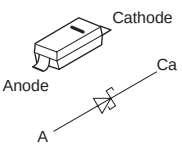
MA143TX

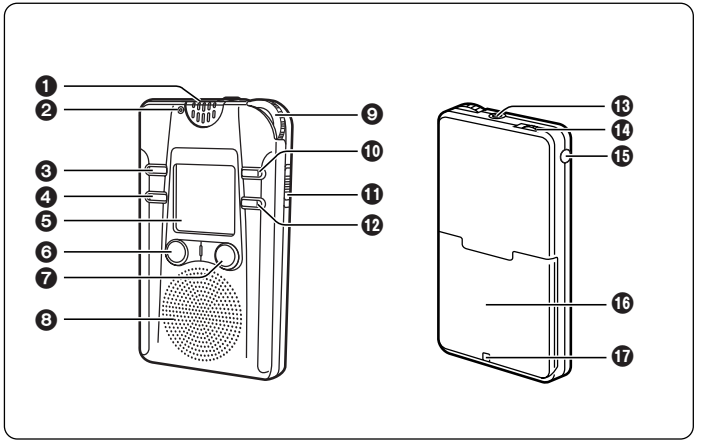


MA111TX

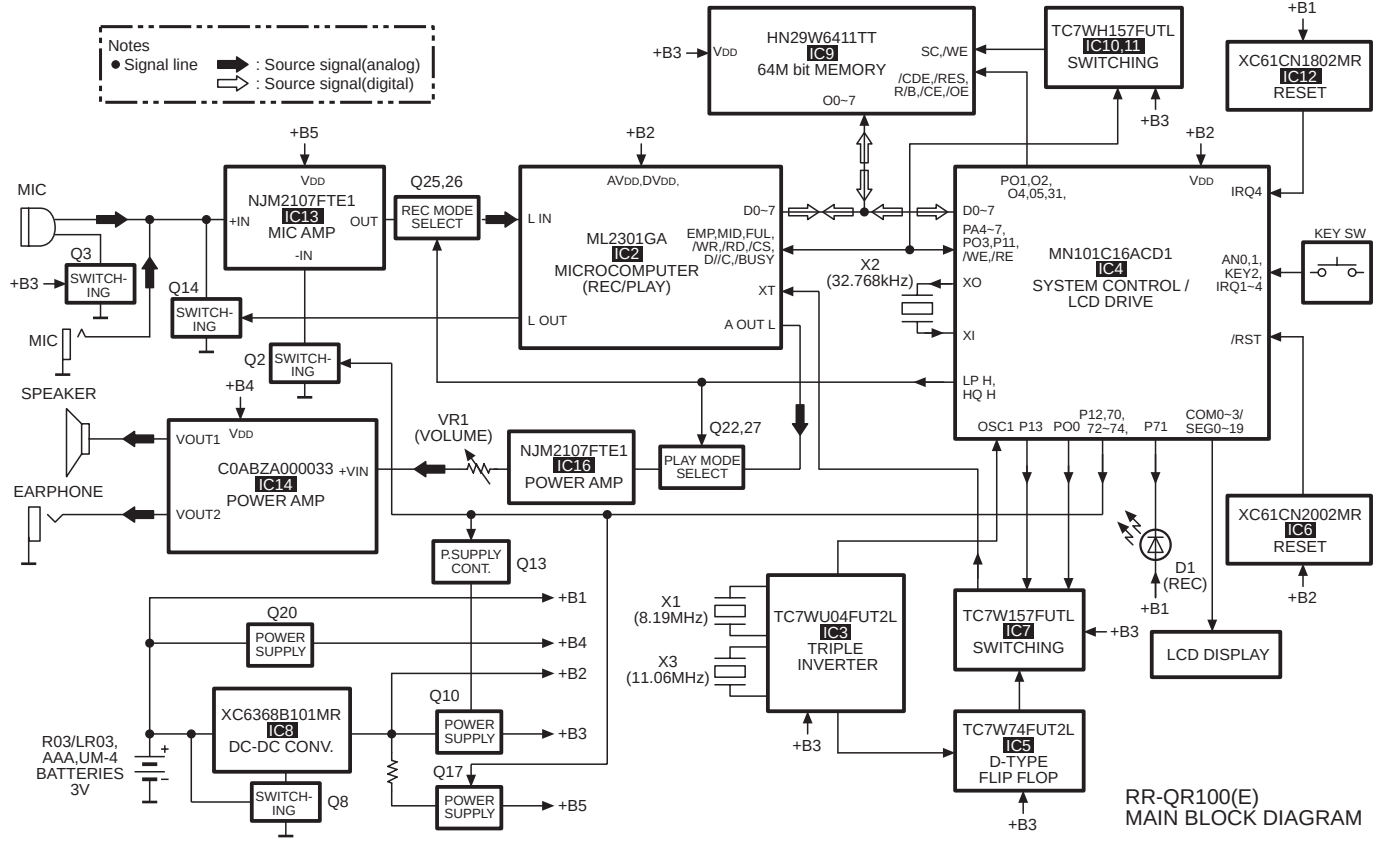


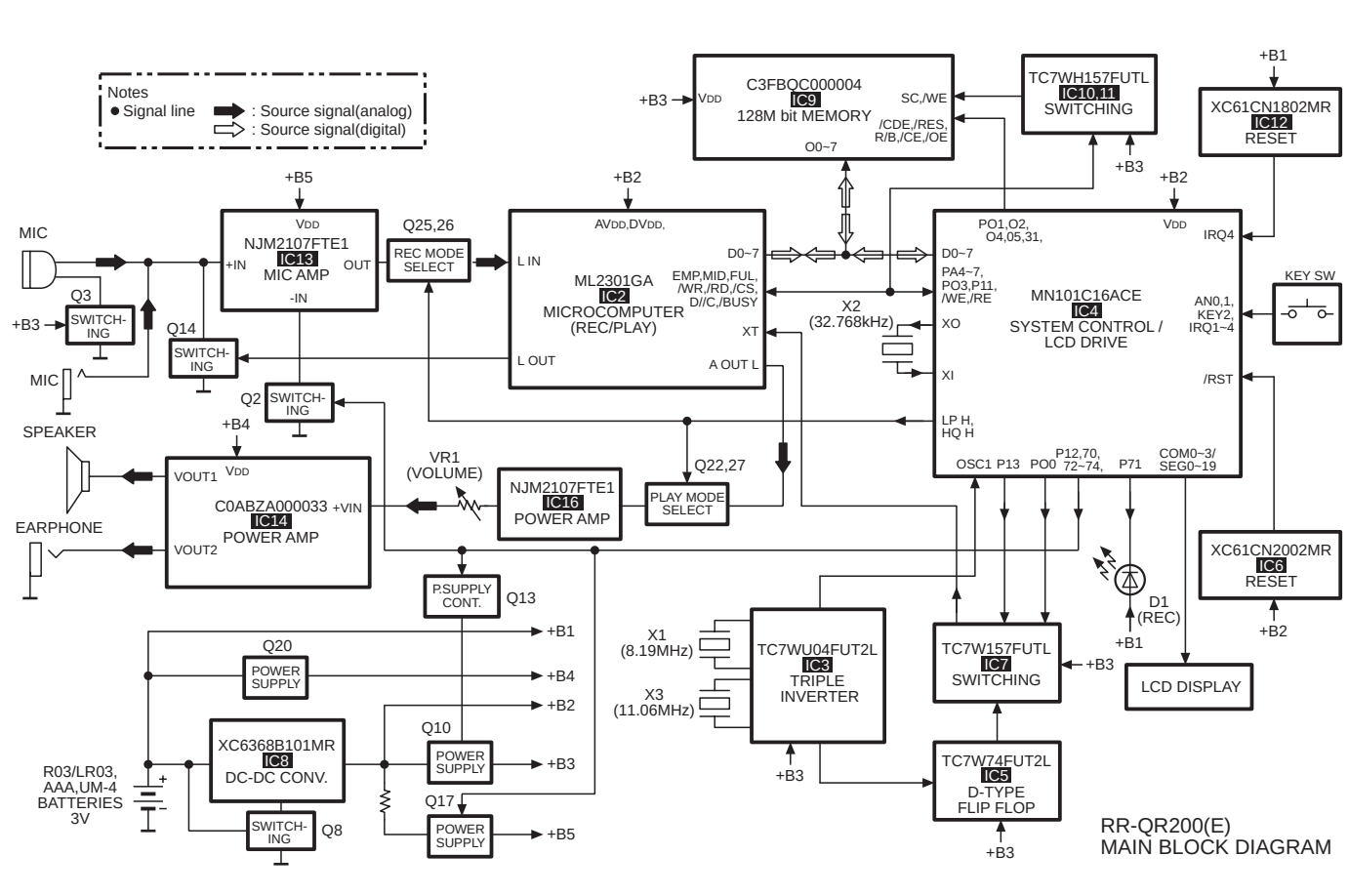
MA735TX





1. Built-in microphone (MIC)
2. Recording indicator
3. Divide button (DIVIDE)
4. Erase button (ERASE)
5. Display screen
6. Stop button (STOP)
7. Recording, pause button (•REC, ▬ PAUSE)
8. Speaker
9. Play/stop, select dial (PLAY/STOP, SEL)
10. Mode button (MODE)
11. Hold switch (HOLD)
12. Folder button (FOLDER)
13. Microphone jack (MIC)
14. Volume control (VOL)
15. Earphone jack (🎧)
16. Battery cover
17. Hand strap hole


Notes
Signal line
: Source signal(analog)
: Source signal(digital)
HN29W6411TT
IC9
64M bit MEMORY
TC7WH157FUTL
IC10,11
SWITCHING
XC61CN1802MR
IC12
RESET
NJM2107FTE1
IC13
MIC AMP
REC MODE SELECT
ML2301GA
IC2
MICROCOMPUTER
(REC/PLAY)
MN101C16ACD1
IC4
SYSTEM CONTROL /
LCD DRIVE
X2
(32.768kHz)
KEY SW
MIC
SWITCH-ING
SPEAKER
EARPHONE
C0ABZA000033
IC14
POWER AMP
VR1
(VOLUME)
NJM2107FTE1
IC16
POWER AMP
PLAY MODE SELECT
P.SUPPLY CONT.
XC61CN2002MR
IC6
RESET
D1
(REC)
LCD DISPLAY
X1
(8.19MHz)
X3
(11.06MHz)
TC7WU04FUT2L
IC3
TRIPLE INVERTER
TC7W157FUTL
IC7
SWITCHING
TC7W74FUT2L
IC5
D-TYPE FLIP FLOP
POWER SUPPLY
XC6368B101MR
IC8
DC-DC CONV.
R03/LR03,
AAA,UM-4
BATTERIES
3V
RR-QR100(E)
MAIN BLOCK DIAGRAM


Notes
● Signal line
: Source signal(analog)
: Source signal(digital)
C3FBQC000004
IC9
128M bit MEMORY
TC7WH157FUTL
IC10,11
SWITCHING
XC61CN1802MR
IC12
RESET
NJM2107FTE1
IC13
MIC AMP
REC MODE SELECT
ML2301GA
IC2
MICROCOMPUTER
(REC/PLAY)
MN101C16ACE
IC4
SYSTEM CONTROL /
LCD DRIVE
X2
(32.768kHz)
KEY SW
MIC
SPEAKER
EARPHONE
SWITCH-ING
C0ABZA000033
IC14
POWER AMP
VR1
(VOLUME)
NJM2107FTE1
IC16
POWER AMP
PLAY MODE SELECT
P.SUPPLY CONT.
XC61CN2002MR
IC6
RESET
D1
(REC)
LCD DISPLAY
X1
(8.19MHz)
X3
(11.06MHz)
TC7WU04FUT2L
IC3
TRIPLE INVERTER
TC7W157FUTL
IC7
SWITCHING
TC7W74FUT2L
IC5
D-TYPE FLIP FLOP
POWER SUPPLY
XC6368B101MR
IC8
DC-DC CONV.
R03/LR03,
AAA,UM-4
BATTERIES
3V
RR-QR200(E)
MAIN BLOCK DIAGRAM